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OF

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SEPTEMBER, 1929

INSTITUTED 1847

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PUBLIC WELFARE IN VIENNA*

Prof. Dr. Julius Tandler
Commissioner of Health, Hospitals and Public Welfare, Vienna

The human catastrophy which by reason of the great War almost brought the people of Europe and particularly the people of Central Europe to extermination, has tremendously increased the value of human life whether measured in relation to the individual or in relation to the community.

War and famine made it indispensably necessary to adopt measures to conserve the population from a social-political point of view. It is, therefore, no cause for surprise that in a city like Vienna which suffered through the war as no other city, the responsible government authorities were compelled to take steps to repair the damages suffered by its population as rapidly as possible. This could be accomplished only by the erection of an entirely new and comprehensive instrument for social welfare service. According to my belief Vienna has accomplished this task in a satisfactory manner. If in many and various regions of the earth the Vienna social welfare service is spoken of with approving recognition it is surely an evidence of the efficiency and virtue of the system. To bring it into being there were necessary two things, a spirit directed to a definite end and the financial means. I would like to discuss the second item first.

The expense for maintenance of the social welfare service in Vienna is approximately 30 per cent of the expenses for maintenance of the entire city. We are spending so much

* Delivered before The New York Academy of Medicine, May 28, 1929

money for the reconstruction of the body of our population not because we are so rich—because Vienna is alas a poor city, but because of the very reason that we are poor. Naturally, everything that we are doing is done with the greatest economy. Although the annual expenses of upwards of 100,000,000 shillings for social welfare service are a very large item yet the expended capital undoubtedly returns its due interest yield.

Human conservation expenses can be said to be productive ones when their end is the reproduction and the reconstruction of human beings. All other expenses must be designated as unproductive; and the human conservation budget of a city can be said to balance only when the productive expenses exceed the unproductive ones.

May I here say a few words about my use of the phrase human conservation? I find no English equivalent for the German word "Bevoelkerungspolitisch" and am compelled to employ the locution human conservation. I will beg you to understand by that locution methods and means generally adopted for improving the population not only to obtain better human beings in the new generation but to improve bodily, physically and economically the present generation.

As long ago as 1924 the budget of the social welfare service was 60 per cent unproductive as compared to 40 per cent productive. The budget of the year 1929 shows the reverse relationship, namely, 40 per cent unproductive and 60 per cent productive expenses. This is surely evidence that the activity in that field has until now been crowned with success. But I would like at this very point to subjoin to this financial budget a few short observations concerning the organic budget. In the year 1911, a considerable time before the war, Vienna had an infant mortality of 17 per cent which rose during the war to from 30 per cent to 40 per cent. Since the year 1925 we have had in Vienna an infant mortality of 8 per cent; also an evidence that the financial means employed are organically

productive. In the very moment when the city government recognized that the management of its organic capital (that is to say, capital consisting of human beings) must be one of its greatest functions, it became clear that the method of private social welfare service, which was until then prevalent, must be retired and that in its place a rational social welfare service must be established. To extend help where there is absolute need cannot be left over to the kindly individual heart, but it must be made into the duty of human society; and thus the spirit in which the whole movement is managed is motivated by the principle that assistance must be regarded as an expression of duty. The poor or unfortunate has the right to receive assistance; the community as a form of organization of human society has the duty to assist. Of course even in Vienna we have not reached perfection in regard to this ethical law but we are on the way and it is the uniform execution of this law which has made the Vienna system so well known.

It was a necessary condition of a proper organization of the system that its execution should be concentrated in the hands of a single person to whom all methods of social welfare service were made available. This condition precedent was fulfilled in Vienna. Accordingly, there is at the head of the system a freely elected representative of the people to whom all social welfare service instrumentalities and offices are subject. It is as a result of this that the entire work has achieved its uniformity and efficiency.

It would lead me too far afield to attempt here an enumeration of all the possible instrumentalities for a social welfare system; I would like to cite a few examples only and particularly those which are derived from the productive social-political or eugenic economics.

A people if it is not to fall into decay must consider it its first task to equip the next generation as well as is at all possible. For that reason every system of human conservation must begin with infant and children's care. This

care cannot begin too early. Since legal regulation is impossible and if attempted would only lead to violations of the law, I have seized upon the means of the optional or professional marriage consultation and established in Vienna the first office of that kind. Of the fact that this office has prospered the best evidence is perhaps the circumstance that in the course of a few years, upwards of one hundred offices of the same kind were established in Germany based upon the model of the Vienna office. Of quite special significance is the pregnancy advice or consultation. We have in Vienna quite a number of such offices which have been working with excellent success. In connection with this system of advice in pregnancy, there was also waged a campaign against congenital syphilis. Every pregnant woman in Vienna who applies during the first three months of her pregnancy, receives without charge a Wassermann test. If she is free of syphilis and gives birth to her child, she receives for the child the sum of forty shillings as voluntary support. If she is syphilitic, she is treated without charge and receives the same sum after the birth of the child. This institution has justified itself quite extraordinarily not only because as a result our children's hospitals almost became free of children suffering from congenital syphilis, but also in that it leads to the treatment of the mother and ultimately the father against the disease. Since good nourishment and cleanliness are decisive in the upbuilding of the child, the city looks after both of these matters. Each mother who applies during the last two months of her pregnancy to one of the forty offices for advice to mothers, receives after the birth of her child a complete set of infant's equipment. In the last year we have distributed to mothers upwards of twelve thousand of such sets.

The notice of each birth in Vienna comes to the children's office which notifies the district social service worker. All of Vienna is divided into 200 districts for the care of children. In every one of these offices there is in charge a social service worker who is charged with the duty to visit the mother and child immediately after she

has received information of the birth. In all lying-in clinics established there is also present a social service worker of the community in order that it should be possible to get at these children immediately. The social service nurse goes to each new born child whether poor or rich. If the mother is rich, the visitor congratulates her upon the birth of her child and therewith her function is ended; but if the mother is poor, the social service immediately begins. If it is possible for the child to remain in the family, the mother receives whenever necessary a certain monthly contribution and every day during the first six months one litre of milk. The mother must, to be sure, call at least once every month with her child at the office for advice to mothers in her district and show the child to the physician in charge. This physician certifies whether the child has been well nourished and gives the necessary instruction so long as the child retains its good health. If the child is ill, then it is referred either to a hospital or to a physician. We take much pains to keep the children in the family circle as long as that is possible. When a child cannot longer be kept in the family, then the community must of course take that child over. The causes for taking over are manifold—poverty of the parents, illness of the mother, death of the parents, the moral hazards to the child because of environment, homelessness —all of these grounds must be considered. For purposes of taking over the children which are brought either by the parents or by the social service worker or by the police, a special office called the children's reception office is provided. The community has built a building of its own in which the children are quarantined for a period of twenty days. The number of receptions averages twenty per day, but sometimes rises as high as fifty. Within this institution, which is under the direction of a physician, the children are carefully examined both physically and mentally. The future destiny of the child is there decided. Some of the children are sent to foster parents which are examined monthly by the city. Some others are brought in to the city's own children's home, especially when there are

psychic defects which require closer study. Some are transferred to other children's homes in the city, some to institutions for the cure of tuberculosis if there is an indication for such treatment. Thus one observes that from one side there is a stream of children into the institution which emerges from the other side with some sort of care provided for them. The entire equipment of the building with its glass boxes has become typical and correspondingly famous.

For children between two and six years of age, there are provided upwards of one hundred kindergartens during the day. These kindergartens contain now upwards of eight thousand children. The mothers can leave their children at seven o'clock in the morning before they go to work and take them back when they return from work in the evening. The children are not merely reared there but are also fed.

Of special significance is the care taken of the school child. About fifty physicians visit the schools and examine the hygienic conditions there as well as the condition of the children. They are required to look after the children but not to treat them. Their decision governs whether the child should participate in the school feeding. About fifteen thousand children are fed daily a noon day meal in about eighty feeding offices. The decision of the school physicians also controls the manner of taking care of the child during the vacation. An organization established for that purpose under the control of the community brings every year about thirty-five thousand children to the country for a five weeks' vacation. The dental care which has been developed and obtained from America and England is also used in our own dental clinics. The school dental care is strictly rational. The children are examined twice a year to ascertain the condition of their teeth. They thereby learn the care of teeth. Defective teeth are either extracted or filled. The school dental care lasts as long as the school itself, namely from the sixth to the fourteenth year.

The constitutional variation and environment of the capitol city bring about a large number of backward children; so that it becomes necessary to make them the subject of special care. Those children which are so difficult to rear and whose mental and moral condition is most carefully examined with the aid of the most various methods are placed in special institutions established for their upbringing. The community in Vienna has such an institution accommodating about six hundred boys and another one accommodating about one hundred girls. In both of these institutions the children are maintained until they reach their eighteenth year and reared in accordance with modern pedagogical principles. Those who reach their fourteenth year receive a vocational education in vocational shops specially established for that purpose.

This description of children's care, although it certainly lays no claim to completeness, indicates in my opinion the uniformity of the system as well as the multifariousness of its execution. Over forty million shillings are spent in Vienna annually for this children's care exclusive of school and children's hospitals and institutions for the cure of tuberculosis. And if you will ask me whether this sum so expended is not too high in consideration of the poverty of our city, I can answer only that an intelligently governed city can spend for children's care only too little, never too much, for there is no capital investment which pays better for itself than children's care. The community in Vienna bought a castle formerly owned by the Hapsburgs and remodeled it as a children's home and not without reason did I cause to be inscribed on a marble tablet of this castle the words "He who builds palaces for children tears down the walls of prisons." The next healthy or at least healthier generations will return this expense with compound interest. That in connection with this service there are also maintained establishments for play and sports and bathing places is of course self understood. Our young ones are able to visit within the city twenty open air bathing places free of charge during all

periods of good weather and play there to their heart's content. Last summer about one million children made joyful use of this possibility.

Not only the office in charge of children's affairs, but also the board of health and the office for the care of the unemployed as well as the office for old people and incurables are subject to the department of general welfare. To discuss all of these departments would require a great deal more time than has been allotted to me. In discussing the children's care, I think I have discussed the most important and the most interesting department.

The place where this address is given, the Academy of Medicine, induces the thought that a few remarks might also be made about the relation between the physician and welfare service.

The industrialization and its consequences, the establishment of great cities and last but not least the recognition of the importance of prophylaxis have exerted their influence upon the situation of the physician. The physician cannot remain merely an individual therapist. He now stands as a part of human society in the very center of the social upbuilding of mankind. The state examining physician as hygienist represents the beginning of this movement. He constitutes the hygienic conscience of the state or the city. His task is much greater than the mere combating of sickness. He must segregate himself from the ranks of the individual therapists and devote himself to the task of being a social hygienist. In recognition of the importance of this I have ordered in Vienna that all newly engaged city physicians shall not be permitted to pursue a private practice. These physicians are paid a definite salary and receive no individual fees. Modern methods of production in great industries have brought it about that the employer and the employed have a common interest in the health of the worker. Out of this consideration and in order to protect the worker there arose the legislation of political social character and the

health insurance office. The health insurance physician receives from the office a fixed fee; he is still an individual therapist but he does not receive an individual fee. At the same time he also may pursue his private practice, a situation, however, which it will not be possible to maintain much longer. The conviction becomes more settled from day to day, that the health insurance physician must devote himself entirely to the health insurance patients unhindered by his private practice and in certain individual offices we see this system in the course of its growth. Thus in the establishment of the health insurance office for officials and workers by the city of Vienna I have urged that at least the three chief physicians who have charge of examinations should no longer pursue their private practice. A similar result is already manifesting itself in other offices. With the progress of an insured workers community the physician who is in private practice loses patients day by day. If one will consider that in Vienna from seventy to eighty per cent of all persons are covered by health insurance it will become evident that the large number of practicing physicians cannot derive a living from the remaining thirty per cent. To this must be added the constantly advancing specialization of medicine which requires the employment of instrumental assistance. Treatment of insurance patients is undertaken more and more in dispensaries because only there is it practicable to keep the necessary apparatus for examination and treatment.

To these two classes of physicians there should be added a third, the social service physicians. These are the physicians in connection with offices for advice to mothers, the school physicians, the physicians for the poor, the school dental physicians, etc. These physicians also receive a certain fixed fee and are permitted their private practice in addition. Some of them, however, have given up their private practice and live entirely from their fixed fees. Physicians have always expressed the opinion that the officialization—so to say—of their profession will be dangerous for their situation as well as for the patients. It was said

that by making the physician's position official it will become bureaucratic. That is certainly untrue. Bureaucracy is a constitutional anomaly and may be found in all professions. There are bureaucrats of medicine as well as bureaucrats amongst teachers and business men. The individual fee surely is not able to protect a man from bureaucracy. It has also been said that the patient seeks a physician in whom he has confidence. In what does this confidence consist and upon what is it based, since the patient knows neither what his illness consists of nor which physician is fittest to treat it? Frequently the source of the so-called confidence is the recommendation of a relative or an acquaintance who knows neither the sickness nor the physician. Thousands and tens of thousands of people go to hospitals and to dispensaries. Their confidence is purely anonymous for they don't know the physician who has their confidence. It is, therefore, not the question of confidence which has significance. It is true to be sure that many physicians will suffer a diminution of their income but equally certain is it that the majority is to gain if the physicians, just as the teachers and the judges, perform their high duties without receiving an individual fee. Those who are devoted to the calling of physician will as before become helpers of mankind, but those who desire to become rich will be compelled to choose a different kind of business. Human society is charged with the duty to provide for the health of all its members and at the same time with the duty to pay decently to its physicians out of the official coffers. Society and the physician must be the gainers and then medicine will not be a business nor a profession, but a free art, and the physicians will be artists for whom society itself will provide in a generous manner.

THE GENESIS OF THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY *

EDWIN P. WOLFE

Colonel, Medical Corps, U. S. Army

The Medical establishment of the United States Army did not "spring full panoplied from the mind of Jove" or lesser creative body. Its advent was unheralded and unsung. It came not into being with any manifestations of pomp and splendor. Rather is it an establishment of slow growth, the result of struggles, hardships, vicissitudes, and development of years. It was officially christened one afternoon late in July, 1775. Its sponsors were men of grave and serious mien, members of the Continental Congress then holding its second session in the City of Philadelphia. Like all christenings, the natal day of this institution had occurred weeks if not years earlier for Congress only gave formal recognition on behalf of the United States, to an establishment already in existence in the colonies.

It is not quite clear when medical service with colonial troops began to be furnished by the colonies themselves at their own cost, but the records of Massachusetts show that in 1676 Mr. John Clark was appointed by that colony, chirurgeon for a force of 500 troops then being raised and that a house was ordered built for lodging wounded soldiers. From that time on medical men in the colonies saw service both with colonial troops and with British Regulars in various campaigns conducted by Great Britain in the western hemisphere. The records of Connecticut show that there were military hospitals at Havannah and Crown Point, criticism being had because of the large quantities of supplies purchased for them in 1762. A military hospital, capable of accommodating 500 patients and provided with living quarters for the medical staff, was erected at Albany during the French and Indian War.

* Delivered before the Section of Historical and Cultural Medicine, March 13, 1929.

During the years 1750-1774, a number of graduates of medical schools in Boston, New York and Philadelphia, being of limited means sought service with troops and in military hospitals for the experience not otherwise to be had. Other graduates having more ample means pursued post-graduate courses in the medical schools and hospitals of England and Europe. Some of them, also, saw service with the armies of continental Europe. While these men were perfecting their professional attainments they were acquiring military training and a knowledge of the management and administration of army hospitals which stood them in such good stead when military responsibilities were thrust upon them in 1775. A few of them including the illustrious Joseph Warren, who died in the battle of Bunker Hill, while a Major-General of the Massachusetts forces, chose the duties of command rather than the service of their profession and attained to high rank. Medical men in those days were more active in affairs, social and political, than to-day. Nine of them participated in the battles of Concord and Lexington April 19, 1775. Twenty-five were members of the Provincial Congress of Massachusetts. Thirty-one, including General Warren, participated in the battle of Bunker Hill, June, 1775. A small number were members of the Continental Congress, particularly during the earlier years of the War.

For a number of years prior to 1775 increasing interest had been taken by the colonies in their militia. Regiments, battalions, and companies were organized, equipped and drilled in conformity with militia regulations promulgated by the Crown in 1764. While the number of men per company and the number of companies per regiment varied in the different colonies, the regimental staff was practically the same in all of them. The medical staff of the regiment was one surgeon and one assistant called mate. In some colonies two mates were allowed. In time of peace this medical staff apparently did not participate in any of the drills or training. Probably they were not selected or assigned until the organization was ordered

to mobilize. It was customary for the colonel of the regiment to select the surgeon and the surgeon to select the mate, in order that their acceptability to the organization might be assured. No provision for a central medical organization or directors appears to have been made by any colony.

The seizure on September 1, 1774, by a force of British troops acting under the orders of General Gage, of a quantity of ammunition belonging to the colony of Massachusetts stored at the town of Medford alarmed all the colonies. Committees of Safety were appointed for the defence measures. These committees again appointed sub-committees to provide arms and supplies of all kinds and to supervise the organizing and training of the militia. Patriotism and enthusiasm ran high. Additional regiments were organized and equipped. Measures were taken to provide the colonies with needed medicines and surgical instruments. Chests of medicine and sets of instruments were purchased for each regiment in so far as they could be obtained. They were given into the custody of the regimental surgeon who was held responsible for their safekeeping and economical use. Massachusetts authorized 15 medicine chests and appropriated 500 pounds for the purchase of such articles therefor, as could not be had on credit. Connecticut authorized "one medicine chest and apparatus, not to exceed forty pounds, for each regiment, and a capital set of instruments for each Corps on any station." New York authorized the purchase of medicine chests, surgical instruments and other utensils and requested two medical men to supervise their purchase and inspection. Probably other colonies did likewise. Some of the Southern colonies were able, later, to capture from British forces medicine chests and instruments they could not procure otherwise.

Early in 1775 the provincial legislature of Massachusetts had become restless and watchful. It should be remembered that General Gage had shut himself up with

a large force of British troops in Boston in the autumn of 1774. On the night of April 18, 1775, he dispatched a force to seize a store of ammunition reported to be at Concord. The movement known, the inhabitants of Concord and Lexington notified, a conflict occurred on the following day at both places between the British forces and the provincial minute men. The first blood was shed of a conflict destined to last more than seven years, and to result in the independence of the colonies. The provincial wounded were cared for primarily by the medical men present and later in hospitals in Cambridge. This action on the part of General Gage was taken as an affront not only by Massachusetts but also by the adjacent colonies that could only be assuaged by armed conflict. Militia organizations were filled up as rapidly as could be and regiment after regiment began to assemble at Cambridge and adjacent towns not only from Massachusetts but from Connecticut, New Hampshire and Rhode Island.

This assembling of troops called for medical service which the colonies were prompt to provide and in this Massachusetts, being the most involved, took the lead. A board of medical examiners consisting at first of three members, later increased to seven, and three authorized to constitute a quorum, was appointed May 8; 1775, for the examination of all candidates for appointment as surgeon or mate in the colony forces. Regimental commanders were directed to submit to this board the names of the men selected by them as surgeons. Examinations were held. These examinations were searching and thorough. The names of successful candidates were submitted to the Provincial Congress and commissioned. The unsuccessful candidates were privately advised of their rejection. A general hospital was, by resolve of April 29, 1775, established at Cambridge under the direction of Dr. Isaac Foster, for the care of the sick of the regiments encamped there and of the wounded remaining from the battle of Concord and Lexington. Dr. Foster, given full

authority to equip the hospital, obtained such supplies as he could from the local commissary and purchased the remainder. Payment therefor was made by the commissary. A medical commissary was authorized May 15, 1775, to receive, store and issue the colony's medical and hospital supplies, and to impress beds, bedding and necessary furniture giving the owner a receipt therefor. Dr. Andrew Craigie was elected to the position. Additional hospitals were opened, as the need required, in the towns occupied by provincial troops. Suitable buildings were rented and remodeled for the purpose. Separate hospitals were established for smallpox and other contagious diseases. Provision was made, also, for the care of the insane.

A medical committee was appointed June 12, 1775, to devise ways and means for providing the troops with medicine and supplies. Another committee was directed to prepare plans and regulations for hospitalizing the sick and wounded. The battle of Bunker Hill was fought June 17, 1775, and lost for the want of supplies—ammunition. The wounded from this battle taxed existing hospital arrangements to their utmost and called for increased facilities, which were provided as rapidly as they could be secured. But there was as yet no director for all these general hospitals. Each was more or less independent, acting on its own initiative. The need for a chief of the medical establishment was not only apparent but urgent. The Provincial Congress set apart July 7th for selecting a surgeon general for the Massachusetts forces. Action was postponed until the following day but the records do not show the result of those deliberations. It is probable that no one was selected because the Continental Congress at the solicitation of the Massachusetts Congress had, on June 15th, voted to assume responsibility for the Army at Boston and selected George Washington as Commander in Chief. He had arrived at Cambridge July 2nd and the provincial legislature had informed him of the provisions already made for the care of the sick and wounded.

General Washington familiarized himself, as rapidly as he could, with the state of the Army, the medical establishment as well as the rest. What he found appears in the following extract of his letter of July 21, 1775, to the President of the Continental Congress.

> I have made inquiry into the establishment of the hospital and find it in a very unsettled condition. There is no principal Director, or any subordination among the surgeons; of consequence, disputes and contentions have arisen and must continue until it is reduced to some system. I could wish it were immediately taken into consideration as the lives and health of both officers and men so much depend upon a due regulation of this department.

But ere this report had been penned the Continental Congress had appointed a committee to draft legislation for a hospital establishment for the Army intended primarily for the treatment of such sick and wounded as were too ill to receive proper treatment from the regimental medical service.

After some deliberation Congress, by a Resolve of July 27, 1775, provided such an establishment, described as a hospital for 20,000 men. Whether this enactment contemplated a basic unit for an army of that size wherever operating, or whether Congress could not visualize a military force or exigency other than the one then at Boston, cannot be determined. The latter supposition appears, in the light of subsequent developments, to be the more probable. In any event the legislation was most meagre and the authority and powers vested in the chief of the establishment were very circumscribed and limited.

The arrangement of the establishment authorized by this legislation was one director general and chief physician, responsible to the Commander in Chief; four surgeons for the management of hospitals; twenty mates to provide attendance; one apothecary to compound officinals and prepare them for ready dispensing; one clerk to keep financial accounts for the director general and property accounts for the hospitals; two storekeepers to store, safeguard and issue supplies to and at the hospitals; and for each hospital

one matron, one nurse for every ten patients, and such laborers and attendants as the day's need might require. The director general was authorized to appoint all personnel of the establishment except the mates whose selection was left to the surgeons.

The director general was empowered to provide medicines, instruments, dressings, hospital furniture and equipment, and all other articles needed for the care and comfort of the sick. He obtained the necessary funds from the paymaster with the army upon warrants signed by the Commander in Chief. All his supplies he purchased where, and as he could. Some of these such as sheets and linen rags for lint, compresses and bandages, leather for splints, web for tourniquets, tape, thread, needles, pins and even blankets were obtained by requests sent to the Selectmen of the various municipalities, by appeals to the clergy and by advertisements inserted in local newspapers. The director-general's accounts of purchases, as well as his reports of the operation of the hospital, were laid before the Commander in Chief and by him submitted to Congress.

As a result of the enactment of July 27, 1775, the Army had two entirely distinct and separate medical services, general hospitals and regimental. Neither was made subordinate or responsible to the other. They had no common chief to direct their activities, unless it was the Medical Committee of Congress, to which both could look for guidance and help in solving their difficulties. The authority of the director general did not by legislation extend beyond the general hospitals. Such authority as he had over medical affairs in the regiment was delegated to him by the Commander in Chief, in orders and otherwise. As a result there was no coördination of activities and very little cooperation between them. Regimental surgeons were ambitious and jealous of their authority. They endeavored to magnify the importance of the regimental hospitals and resorted to many subterfuges to avoid

sending their patients to the general hospital. To support their pretensions of importance these regimental surgeons made demands upon the director-general for excessive quantities of medicines and hospital stores, much of which, it is feared, were used for private purposes. When these demands were not or could not be approved by the director-general, the regimental surgeons complained to their respective colonels. Strife and contentions became rife. Let us hear General Washington's comment and orders in the matter:

> Repeated complaints have been made by the Regimental Surgeons that they are not allowed the proper necessaries for the sick before they become fit objects for the general hospital, and the director-general of the hospital complains that, contrary to the rules of every established army, these regimental hospitals are more expensive than can be conceived, . . . indicates either an unpardonable abuse on one side or inexcusable neglect on the other * * *. Courts of inquiry will be appointed by the various brigade commanders to inquire into these complaints. Soldiers too sick to remain in camp are to be sent to the general hospital. There is no need of regimental hospitals without the camp, when there is a general hospital so near and so well appointed.

Some order and harmony were established as a result of these measures and the authority of the director confirmed. The controversy was destined to be renewed the following summer at New York by the regiments of militia sent there to reinforce the Continental Army.

The regimental surgeon was not without grounds for complaint. He had no one to look to for his supply of medicines and dressings except the Medical Committee of Congress, unless he received them from the general hospital on authority from the director-general. He was, to a very large extent, an orphan. For a better understanding of the situation a brief consideration of the equipment of a regimental hospital is desirable. As to manner of housing, two or three large tents were provided for use in the field. When billeted in cities a suitable house was selected by the regimental barrackmaster. When in winter encampment, a hut was provided in which to hold sick call. For beds and bedding, bunks if provided at all, were

built by an artificer of the regiment. Each company was required to carry two empty bed sacks for use of the sick. These sacks were obtained by the company commander from the regimental clothier. When required for use they were filled with straw provided by the regimental quartermaster. For covering, the sick soldier had his own blanket supplemented, perhaps, by additional blankets loaned to the company commander or the surgeon. The cooking utensils, pots, pans, tin cups, and the like, the surgeon obtained from the quartermaster. Such articles of furniture as were required and could be furnished were also supplied by the quartermaster. No provision was made, however, for provisions for the sick. Such food supplies as were had were articles of the ration, supplied by the regiment. The surgeon had no personnel to look after his patients. Attendance, except the feeding, was rendered by the surgeon and his mate. For each regimental hospital a guard of three men was allowed. Of these one stood his tour of duty as sentry. The other two were available to help care for the patients.

For his professional equipment each regimental surgeon was supposed to have a chest of medicines, some instruments, and a few dressings. No list of medicines authorized for the medicine chest has been found. Perhaps it can be visualized from the list of those furnished the ship Marquis de la Fayette by surgeon Jonathan Drowne in 1782 and the following reported short by the Surgeons at Fort Ticonderoga, August 31, 1776.

Acetic acid, common;	Myrrh,	Radix Serpentar. Virg.
Aloes Hepatica,	Hordeum common (barley),	Sal Epsom,
Calomel,	Mercury Precip. rubrum,	Sal Nitre,
Emplastrum Diachylon,	Mercury Corrosive Subl.,	Spts. Sal Ammoniac
Gum Guaiac,	Pulv. Cortes Peruviana,	Tartar Emetic
Gum Opii	Pulv. Ipecac	Unguentum Diachylon,
Cantharadis	Pulv. Jalap	Elixir Asthmatic,
Gum Camphor	Pulv. Rheum	Elixir Vitriol

List of Medicines For Ye Ship Marquis de la Fayette

Calomel	ʒ-jj.	Ext. Saturn	ʒ-jjj.
Tartar Emetic	ʒ-jj.	Ung. Mercurial	1b-j.
Gum opii	ʒ-ss.	Ung. Basilicon or Digast...	1b-jj.
Pulv. Ipecac	ʒ-jv.	Cerat. Epulot	1b-j.
Pulv. Rhei	ʒ-jv.	Sal. Cathart.	1b-jj.
Pulv. Jalap	ʒ-jv.	Sal. Nit. ppt.	1b-j.
Pulv. Cort. Peruv.	ʒ- jv.	Sal. Ammon. Crud.	ʒ-jj.
Cortex Peruv.	1b-j.	Sem. Anis.	ʒ-jv.
Elix. Vitriol	ʒ-jj.	Lard	ʒ-jv.
Elix. Proprietat	ʒ-jj.	Sapo venat	
Flor. Chammom	ʒ-vj.	Manna	
Flor. Sulph.	1b-jj.	G. Arabic	
Laud. Liquid	ʒ-jj.	Cream Tart.	
Vin. Antimon	ʒ-jjj.	Tinct. Myhrr et Aloes	
Emp. Diach. Simp.	1b-j.	Liniment Arcai et G. Elami	
Emplast cum Gum	1b-j.	Syrup Scillit	
Emplast Melilot	1b-ss	Conf. Rosar rub.	
Emplast Mercurial	1b-ss.	Merc. precip. rub.	ʒ-j.
Pill Cochia		Merc. corros. sub.	ʒ-ss.
Pill Rufi		Cantharidis pulv.	ʒ-j.
Balsam Traumati		Camphor	ʒ-jv.
Spt. Volat		Vitriol Roman	ʒ-j.
Spt. Terebinth		Vitriol Album	1b-jss.
Ol. Olivar	1b-jj.		

1 case Amputating Instruments.	1 doz. Common Stick Tourniquets.
1 Case Trepanning Instruments.	1 Brass petit Tourniquet.
1 Case or pouch Dressing Instruments.	.... Syringes.
1 Case Artery Needles.	.... Mortar.
3 Good Lancets.	.... Scales and Weights.

Lint	1b-jjj.	Thread	
Carded Tow	1b-jjj.	Wax	
Old Linens		Sponge	
Pins		Ligatures	
Silk		Splints	
Rice		Bandages	
Oatmeal		Claret wine	
Indian meal		Vinegar	

A tin Coffee pot.	10 tin Pint cups.
4 tin Quart pots.	Spoons, &c.

A medical friend to whom the director-general applied early in 1776, replied "To give you a long list of medi-

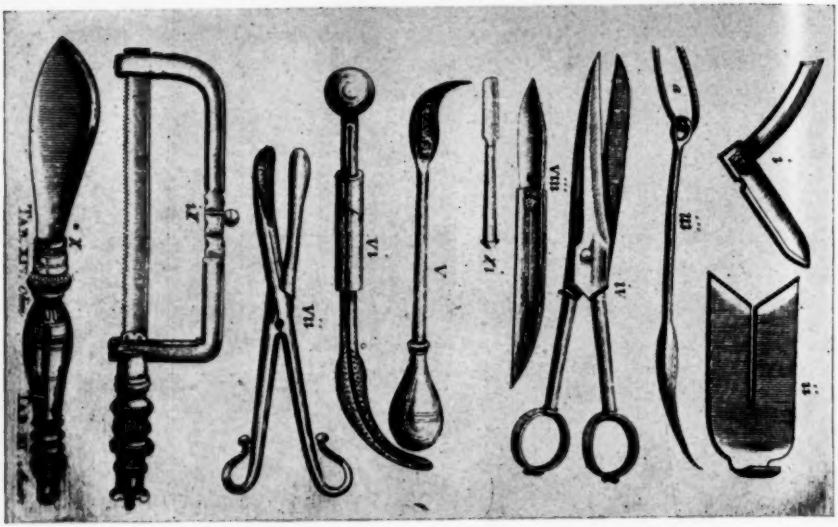
cines, etc., (used in an expedition in the last war) would avail you little at present, as many of the articles are not to be had; nay I am certain, one half of them might at any time, be left out."

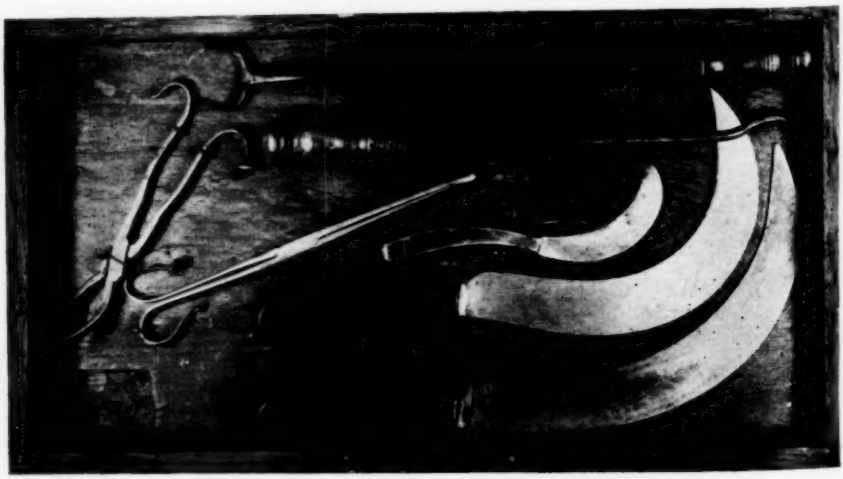
The following surgical outfit was recommended by the director general

Instruments for Surgeon and Mate	Bandages, etc.	Linen, etc.
A set of amputating instruments consisting of at least	Of Bandages, Rollers, &c., of various kinds, at least 300.	Six pairs of old sheets or rags equivalent for compresses, &c.
A large knife	One or two dozen sets of splints,	Lint, 2 or 3 pounds at least,
A saw with 2 blades	2 dozen common tourniquets,	6 ounces of sponge
A catline	3 ounces of thread for ligatures.	6 pounds of fine tow.
12 crooked needles	A piece of 2 inch wide tape.	
A screw tourniquet	16 or 18 inches square of sadler's leather, and a piece of sadler's inch wide girting.	
A case of six incision knives	Bandages, tourniquets, splints, &c, should be made by the Surgeon and Mate.	
2 sets of pocket instruments		
4 bullet forceps		
An artery forceps		
2 dozen straight needles		
A paper of pins		
A case of lancets		

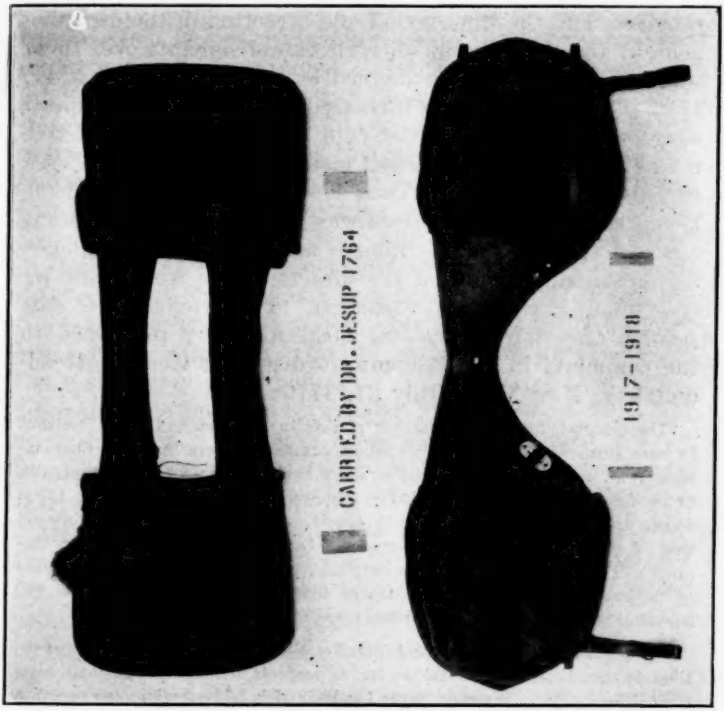
For this equipment he recommended that each surgeon have a portable box, with suitable divisions for containing his lint, bandages, instruments, and other implements of surgery.

Some conception of the instruments of the period, a few of which were undoubtedly included in the regimental equipment, may be gathered from the following illustrations.





No medicine chest of this period, the authenticity of which can be properly vouched has been located although the search has been extensive. Nor has there been found any cut or description of it. A saddle bag, carried by Dr. E. Jesup, surgeon of colonial troops in the campaign of 1764, is in the possession of Mr. Arthur S. Jesup of this city, a direct lineal descendant, through whose courtesy the following illustration was obtained. In one pocket of this bag is some of the tow issued for dressings.



For removal of the wounded from the field of battle regimental surgeons were instructed to make arrangements with regimental officers for a supply of hand barrows,

wheel barrows, or other suitable biers and for men to carry them. For evacuating the wounded, the Quartermaster was directed to provide a number of suitable wagons. Just what type of wagon was considered suitable for this purpose has not been discovered, whether the standard freight wagon, a lighter wagon, or some type of spring vehicle. Ambulances as such had not been devised. The Quartermaster was, by later legislation, directed to provide "litters."

The disabilities of the regimental surgeons were, in part removed, and the supervision and direction of the director-general and directors of separate establishments over them was extended and better defined by the resolve of July 17, 1776. This resolve also increased the number of hospital surgeons and mates at the rate of one surgeon and five mates for every five thousand men in the whole army. An increase of personnel for these hospitals in stewards, storekeepers, matrons and nurses was authorized. Regimental medical and surgical equipment and supplies were placed under the supervision of the directors who were made responsible for their replenishment. The provisions of this resolve affecting regimental hospitals were published to the command in the following order from General Headquarters, New York, July 27, 1776:

"The General, finding the number of sick to increase, and being desirous to have them as well accommodated as possible, directs that the Barrack-Master . . . of each regiment fix on some house convenient to the regiment, to be improved as an hospital for the reception of patients just taken down, or whose disorder does not require any special assistance beyond that of their own Regimental Surgeon. One of the surgeons of the hospital will occasionally visit these hospitals, and determine when the nature of the case requires the patient moved to the general hospital, which will hereafter be kept in different houses contiguous to each brigade.

The regimental surgeons are to receive directions from, and be responsible to, the Director General so far as respects the furnishing their regimental hospitals with conveniences for their sick. The regimental surgeons are also to keep a register of their sick, and make a weekly return to the Director and Commissary general severally, of the sick in their respective regiments.

Whenever a person is taken sick he is not to be borne on the provision return; but the value of his ration be obtained in suitable supplies from

the general hospital, to be drawn by the surgeon of the regiment, who is to conform to the rules of diet established in the general hospitals, and to account to the Director General.

The legislation of July 27, 1775, had another serious defect. Whether by intent or inadvertence the authority of the director-general over hospital affairs was not extended beyond the establishment with the main army. Almost before the ink of the signature to that resolve had time to dry another hospital establishment became necessary. Without so much as a scratch of authority from even a provincial Congress a band of colonial troops under Ethan Allen had early in May seized the very important strongholds of Ticonderoga and Crown Point securing a large number of cannon and vast quantities of military stores. The immense advantage to the colonies of possession of these strongholds was at once apparent. Additional troops were dispatched to hold them and plans prepared for an early invasion of Canada before Great Britain could have time to reinforce her garrisons there. A General Officer was detailed to command the troops there assembled and thus a new army was formed and the Northern Department created. Instead of placing hospital arrangements for this army under the director-general of the main army and increasing his authorized personnel accordingly, Congress by resolve of September 14, 1775, created for it a separate hospital establishment only a little inferior to that of the main army. The director of this establishment was authorized to appoint mates and other hospital personnel. The deputy commissary general of the department was instructed to pay the director for such medicines as the latter had purchased for the use of the army and to procure such other medicines as he might be directed by the commanding general to do.

But Congress did not stop with that of the Northern Department in its creation of separate hospital establishments. Another was authorized May 18, 1776, for the forces in Virginia and the Colonies to the southward. Still another was authorized July 15, 1776, for the Flying

Camp established at Trenton for the rendezvous of Militia Regiments en route from Pennsylvania and near by colonies. Each of these establishments was under a director appointed by Congress and authorized to appoint his own staff and hospital personnel as the need of the service required. Congress may have attached less importance to these establishments and intended to make them secondary to that of the main army but there is no evidence of any intent to make them subordinate or responsible to it. Distance from the main army and difficulty of communications justified, in a large measure, the independence of the establishment in the Southern Department, but the same cannot be said of the others. This arrangement with division of responsibility and authority had its usual result in bickerings, controversy, and confusion. The directors of separate establishments when in need of supplies demanded them from the director-general, who, while willing to help, did not consider his authority wholly adequate. The directors endeavored to shift the responsibility for their deficiencies to the shoulders of the director-general. The inevitable happened for Congress, without according a hearing to either of them, on January 9, 1777, summarily dismissed both the director-general and the director of the Northern Department.

The vicissitudes and disaffections which resulted in the dismissal of the director-general at last convinced Congress that a complete reorganization of the medical establishment was unavoidable. A plan of reorganization proposed by Dr William Shippen, Director of the Flying Camp, and Dr. James Cochran, hospital surgeon, transmitted to Congress February 14, 1777, by General Washington, served as the basis for consideration. The discussion was prolonged. The draft submitted by the Medical Committee was twice recommitted for further study. The measure as it finally appeared in the Resolve of April 7, 1777, was a distinct improvement over its predecessors. The authority of the director-general was extended over the establishments in all territorial departments or districts. He was represented in each department by a dep-

uty director-general. Supervision of professional service in general hospitals was vested in a physician general and a surgeon general for each department who probably functioned as consultants. The purchase of medical and hospital supplies including special diet was devolved upon the deputy directors general. Each department was allowed an apothecary to handle pharmaceutical supplies, a hospital commissary to provide provisions, forage, and other like articles, and a clerk to keep financial records, prepare financial reports, and act as paymaster. Each hospital was allowed senior and junior physicians or surgeons, according to the class of patients treated, and mates to assist them, hospital stewards, matrons, nurses, and a hostler.

The resolve also provided a definite field organization under a physician and surgeon general for each army. This was wholly an army unit, intended to supervise the regimental medical service and to provide temporary shelter and treatment for the sick and wounded while the troops were in the field. It functioned also, in similar manner, while the troops were in winter quarters. Out of it grew the flying hospital, the ante-type of the modern evacuation hospital. The deputy directors general represented the departmental organization and had supervision over the general hospitals and the detached military units not with the army but needed for the protection of certain defensive points. These officials had fixed stations and did not travel with the army. The duties of all officials in the medical establishment were sufficiently well defined in the resolve to leave no doubt as to their mission.

Subsequent legislative enactments of February 6, 1778, September 30, 1780, and January 3, 1782, reorganizing the medical establishment served gradually to form it into one uniform corps, responsive to a single administrative head, and functioning as a harmonious whole. The providing of all medical and hospital supplies was ultimately vested in a purveyor thereby wholly separating practice from purveyorship, a condition frequently criticized by Congress.

With the demobilization of the army following the proclamation by Congress, April 11, 1783, of cessation of arms as well by sea as by land, this admirable medical organization built up with such effort disappeared. After the discharge of the purveyor, October 31, 1784, not a vestige of it remained. For many years thereafter the entire medical service for troops was rendered by regimental surgeons and mates in post or camp hospitals where stationed.

In 1792, as a result of a disastrous defeat in an Indian campaign of the previous year, the army was increased and reorganized as the Legion of the United States. This Legion was composed of four sub-legions having 1,280 enlisted men each, formed into two battalions of infantry, one of riflemen, and one company each of dragoons and artillery. A surgeon was authorized for each sub-legion and a mate for each battalion. A Legionary Surgeon, member of the Legionary Staff, supervised the Medical establishment.

In 1798 war with France appeared inevitable. The Army was increased, additional surgeons and mates authorized but no provision was made for a hospital department. This defect, being criticized by the Secretary of War and the criticism concurred in by the President, was remedied by the Act of March 2, 1799. This act contemplated a single uniform corps which, exclusive of regimental surgeons, consisted of the following persons:

A physician general as chief, who was charged with the general supervision and direction of all military hospitals, of the medical and surgical practice or service in the Army and Navy, and of all employees of the Medical establishment in hospitals, camps and garrisons; an apothecary general with one or more deputies, charged with the storage, preservation and issue of all medicines, instruments, dressings and other articles required by the hospital and regimental service; a purveyor whose duty it was to procure all medical and hospital supplies; an adequate number of hospital surgeons, liable for field service, charged

with the administration of hospitals to which assigned; a suitable number of mates to perform, under direction of the surgeons, the ordinary duties in the care of the sick in hospitals; and for each hospital a steward, and a competent number of nurses. The act provided for a medical board whose duty it was to examine all candidates for employment in the hospital department and certify to the Secretary of War their respective qualifications. The act further provided that regulations for the management of hospitals and the government of nurses and others charged with the care of the sick in camps and hospitals be prepared by a board consisting of the physician general and two hospital surgeons. These regulations became effective after approval by the Commander in Chief and the President.

At the urgent request of General Washington, his intimate friend and personal physician, Dr. James Craik, who had served as chief hospital physician during the Revolution, was appointed physician general and the necessary steps taken to organize the Medical Department. This organization had scarcely been completed before the war scare passed and the provisional army demobilized. With this demobilization the central organization again disappeared. In the return of the Army to peace time footing in 1802, provision was made for two surgeons and twenty-five mates for the army, attached to garrisons or posts and not to regiments. The Medical Department here for the first time, appears as a single corps. The number of mates was increased by six in 1804, and by five hospital surgeons and fifteen mates in 1808. The advent of the War of 1812 found the Medical Department in a most inadequate state without a central organization. The country was at that time divided into territorial departments and in each department the senior medical officer acted as chief surgeon of the military forces therein and as advisor to the department commander in medical affairs.

The act of January 11, 1812, for an additional military force authorized hospital surgeons, mates, stewards and

other hospital personnel, but made no provision for a central organization or directing head. It was not until March 13th of the following year that Congress reluctantly authorized it. The Act of that date for the better organization of the general staff of the Army created the offices of physician and surgeon general, and apothecary general, but left it to the President to prescribe their respective powers and duties. The following appears in the Army regulations of the period:—

> It shall be the duty of the physician and surgeon general to prescribe rules for the government of the hospitals of the army; to see these enforced; to appoint stewards and nurses; to call for and receive returns of medicines, surgical instruments, and hospital stores; to authorize and regulate the supply of regimental medicine chests; to make out general half yearly returns of these, and of the sick to the war department, and yearly estimates of what may be wanted for the supply of the army.
>
> The apothecary general shall assist the physician and surgeon general in the discharge of the above mentioned duties, and shall receive and obey his orders in relation thereto.
>
> The apothecary general and his assistants will compound and prepare all officinals, and put up and issue medicines, etc., in chests, or otherwise conformably to the estimates and requisitions of the senior surgeons of hospitals, regiments and posts. Returns are to be made to the apothecary general's office, quarterly, by the deputy apothecaries, surgeons, and mates, or any one having charge of instruments, medicine, hospital stores, and hospital equipments of any description.

In addition to the central office just described the arrangement of the Medical Department as prescribed in army regulations contemplated a departmental or district distribution of its officers. The senior surgeon of each district was director of the medical staff in that district. He supervised all military hospitals in his district, regimental and general, corrected abuses, took administrative action on requisitions for medical supplies, and rendered quarterly reports of sick and wounded. He acted as adviser to the Commanding Officer on all matters affecting the health of the command. The regulations covered also the duties of surgeons in charge of hospitals and their mates, hospital stewards and ward masters, and those of regimental surgeons and mates. A direct line of authority

and responsibility extended from the chief of the establishment to the least important attendant in the hospitals, general and regimental. Rank, which was only relative, was determined by seniority of appointment. Assignment to positions depended upon the qualifications and ability of the individual. The regulations further provided that no candidate should be appointed to the department unless he possessed a diploma from an approved medical school or had passed an examination by an army medical examination board.

The Medical Department during this war appears to have been well organized, well administered, and to have, in the main, performed its mission creditably. It is true, the medical with other departments of the army, at the commencement of the war, wanted a system. Military hospitals were to be founded by gentlemen, little versed in hospital establishments for an army. These were evils, the necessary consequence of our civil policy and long period of peace, and which all new military establishments have to encounter; under the able supervision of Dr. James Tilton, the physician and surgeon general, these deficiencies were overcome. Some of the general hospitals had an enviable reputation for arrangement, administration and efficiency. The duties of the Apothecary General, Francis Le Baron, were performed efficiently as evidenced by the tribute paid him by Major Mann, chief surgeon of the Division of the Right in his Medical Sketches, "In justice to Dr. Le Baron, Apothecary General of the Army, it is with pleasure we acknowledge, he executed his duties with complete fidelity."

In returning the army to a peace footing in 1815, Congress again omitted all provision for a central medical organization or a chief to head the establishment, but gave the President authority, if he deemed it necessary, to retain provisionally the apothecary general and two assistants. This authority was exercised, and the apothecary general retained. An Act passed the following April definitely incorporated them in the medical establishment. The need for a permanent chief definitely to head the de-

partment was keenly felt by the Secretary of War. Finally in April 1818, an Act regulating the Staff of the Army was passed which provided:

> Sec. 2. That there shall be one Surgeon General with a salary of two thousand five hundred dollars per annum, one assistant surgeon general, with the emoluments of a hospital surgeon, . . . and that the number of post surgeons be increased not to exceed eight per division.

Thus was established the central administrative organization of the Medical Department which continues to the present day, and Dr. Joseph Lovell, appointed the first surgeon general under that act, has not lacked a successor for the position he so ably filled until 1836. The changes made in the organization and arrangement of the Medical Department since that date have been few. Its personnel has been augmented during each war in which the United States has been engaged and reduced after the temporary forces have been disbanded. Volunteer forces raised to augment the Regular Army during these wars, have been attended by volunteer Medical personnel who have functioned under and been subordinate to the Surgeon General. In 1888, the Hospital Corps, an enlisted force was made a part of the Department. In 1901, a force of dental surgeons were added, employed for a number of years under contract, but incorporated in the Medical Department as the Dental Corps by Act of March 3, 1911. The Army Nurse Corps became a part of the Medical Department by the Act of February 2, 1901. The Medical Reserve Corps was authorized by Act of April 23, 1908, and proved of inestimable value to the Medical Department both prior to and during the World War. And lastly, the Veterinary Corps was added by the National Defense Act of 1916. The designation Medical Corps was given the commissioned personnel of the department in 1908.

ALLUSIONS TO MEDICINE IN CLASSICAL LITERATURE *

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It is an interesting thought that if each of us stood up with his father and grandfather in a row, our lives would cover approximately a century, if our grandfather's father and grandfather could do the same, a sceond century would be covered, and if the process were continued back to the birth of Christ, we would have approximately sixty men, representing sixty generations. If this were continued back as far as the time of Hippocrates in the fifth century B. C., we would have seventy-five generations, and to the time of the siege of Troy when Machaon and Podalirius were surgeons to the Greek army, we would have about one hundred men standing in line, about the size of a company of infantry. Many interesting reflections accompany this thought; among others comparing the time during which these generations have been on earth with the millions of years that man has existed, it would seem that on the whole our fathers, back to the time of the Trojan war, must have been much the same men as we are, for in so few generations how could much change be affected by evolution? When we think on the other hand of the progress that our profession has made, especially in the last two hundred years, or since the time of Harvey, it seems impossible that during the duration of the lives of not more than one hundred men so much should have been accomplished.

An interesting thought also is that together with philosophy, science and the plastic arts, the latter of which rose in Greece during the fifth century B. C. to heights that have never been surpassed, the science of medicine reached a stage, culminating in the Hippocratic School, of great advancement. The principles established by this School, as continued by the School of Alexandria, reached

* Delivered before the Section of Historical and Cultural Medicine, January 11, 1929.

in the time of Galen a stage where progress ceased, and Greek and Roman medicine had to suffice for the profession through the long period of the dark ages, until at the time of the renaissance, medicine together with the arts and sciences began to advance with a rapidity which has gradually increased in momentum until the last one hundred years. During this period the science of medicine, in contradistinction to the art, has gone ahead so fast that no one can keep up with it. Indeed, our students are apt to forget, in the scramble of the acquisition of knowledge, that there is such an art. In no way can the principles upon which medicine are founded be so well impressed upon our students as by reading judicious selections from the writings of Hippocrates. In ethics we have not improved upon the Hippocratic Oath, and in some ways many of us fall below it. How about our loyalty to our teachers?

Hippocrates seems to us to have lived long ago, but, strange to say, wrote a treatise on ancient medicine. So medicine must have been ancient in his day, and have made progress from the stage of Aesculapius, the witch doctor of Tricca, the son of Apollo, who was ushered into the world by a very crude Caesarian performed by his reputed father, and made himself such a reputation for curing the sick and raising the dead that he, with Hercules and Dionysius was translated to Olympus and at his death became a God.

What were the influences which during the few hundred years from the Trojan war to the great fifth century, enabled our profession to develop an Hippocrates? From the very beginning of the magic and priestcraft of these early days, there must have been those among the priests who observed and thought about their work. They probably gathered from the instinctive knowledge of mothers, the first and best of nurses, the principles applicable to caring for their children, and applied them to making comfortable those suffering grown-up children, the sick. The worship of physical perfection, so highly developed

among the Greeks, made worth while the care of the body. The first recorded Olympic games took place in 776 B. C. Undoubtedly there were many games and much study of training methods before that period, but Hippocrates had the advantage of the knowledge gained by observing the training of athletes during the two and a half centuries since the first Olympiad. Didn't the Asclepiadae, of whom Hippocrates was one, learn during these generations to place their temples, as at Epidaurus, in cool pleasant groves, with a good water supply? Even as in our day some of the quacks and cults have learned much about the care of the sick, so not improbably the Priests of Aesculapius gradually progressed from pure magic to real medical and surgical therapeutics. Hippocrates freed his school from priestcraft. Yes, medicine was ancient in his day. From his treatises one may learn the principles of diet and regimen upon which the care of the sick was then, and still is, dependent. It is good for us to think upon the trouble with quacks and cults we have to-day, and then reflect upon the difficulties the heroes who rationalized Greek practice must have undergone in weaning their people away from the magic and sorcery of the priests, which was so intimately interwoven with their religion. The priests were the regular practitioners. There were no boards of registration in medicine or laws regarding medical practice. To combat all these difficulties, medicine had to be founded on principles that would stand, and, in spite of the humoral pathology and principles taken from philosophy, it was. One cannot get the most out of Hippocrates or Galen unless he can read and criticise them in their own language. Would that some Greek Harvey Cushing had written a biography of Hippocrates! But I am not after all delivering a treatise on Greek medicine. I want to tell you how much fun a medical man can get out of the classics. Leave aside the fact that a new world is opened in philosophy, poetry and history. In these fields the Greeks were the "pioneers," the lads that cleared the way, to borrow a phrase from Aeschylus, and after all life, even medical life, is a little more than practice. Are we worse

doctors for knowing the sublimity of Aeschylus, the greatest poet that ever lived, the charm of Sophocles, and the humanity and subtlety of Euripides? If we want to laugh, we can look into Aristophanes, and if I am not mistaken, we will often be compelled to break out into guffaws, and join the chorus that has rung down the corridors of time. Then if we begin to wonder (and philosophy in the lovely Greek mythology is the daughter of wonder), why and for what purpose we are here on earth, and what is our relation to the universe, we can not do better than to read the inspired pages of Plato or the clear logic of Aristotle, and learn what those who started first with a clear field, but with minds well adapted to the work as any who have been here since, thought and wrote about these things. In their science, and in this I mean the stream of thought which was continuous clear down through the period of the Roman empire, they showed what man could learn with his five senses and without what we should call instruments of precision. And wonderfully far they got. The Egyptian astronomers in the time of Ptolemy were Greeks. We may pity Aristotle because he didn't have a microscope, but we cannot help being filled with wonder at what he did without it. In mathematics, look at Pythagoras and Euclid; in mechanics, Archimedes. What study can surpass in interest that of the manner in which they have worked out the first principles upon which they built the structure of mechanical and physical science. Another reason for the importance of the classics to the study of medicine is this: Without an education in the classics, not to speak of modern languages, how are we to meet on an equal basis, or even understand the allusions of our more cultivated colleagues upon the continent of Europe? It is an honor to the American profession that Dr. William S. Thayer of Baltimore, a most cultivated gentleman and a lover of the classics, is president of the American Medical Association, and I may here quote briefly from him on this subject:

"By many men of affairs, professional men, artists, men in the diplomatic service, students of the natural sciences,

especially by those who are thrown into relations with educated Europeans who hold like positions or have like interests, the lack of a classical foundation is often keenly and mortifyingly felt. A good classical basis is essential to him who would commune freely with an educated European. Greek and Latin are intensely living languages to the scholarly men to-day as yesterday. It is through them that one learns the niceties of his own tongue; nay, not only the niceties but the essential principles. A respectable classical education is the first step toward the acquisition of a reasonable command of one's own language or of other modern languages. The more delicate nuances of thought, the finer details of observation, cannot be expressed or described, if indeed they can be appreciated, by one who has no further mastery of his own language than the average American college graduate of to-day. He who cannot adequately express that which he begins to appreciate is in the position of a child, seriously handicapped in his external relations. The early acquisition of a familiarity with the subtleties of human language and expression is a natural and vital step in the progress of the young savage that each one of us is at the time of his birth, toward civilization. An early and a careful classical training is still the best discipline for him who would later devote himself to the accurate quantitative methods of the natural sciences.

"And then what element in our civilization is more valuable than those early traditions, historical and literary, references to which serve educated men all the world over as common symbols—the possession of which marks the man of cultivation and gives him powers of expression and understanding so far above those of his less fortunate neighbor? These traditions and this command of language are closely bound up in a familiarity with the Greek and Latin tongues and literature.

"For the lack of this basic training which, by some, is regarded as too time-taking, we substitute to-day in our schools and colleges all manner of courses in 'English,'

with painfully inferior results. Such courses which, in great part, would be a pure waste of time to one with a respectable classical foundation, are a poor substitute, a superstructure without base. No study of English grammar, no accumulation of courses on English composition, can teach one his own language so well as the study of Greek and Latin and practice in the translation of classical masterpieces into English; and may we not fairly ask if we are saving time?

"In some respects, and very important respects, the American college graduate to-day is a child compared to his British or continental brother. In some ways he is very apt to remain so throughout his life. He lacks that power of comprehension and expression which facilitates intercourse between cultivated men. The lack of this power in some of our foreign representatives prevents mutual understanding and leads to suspicion. It is not an accident that our best representatives in the Mother Country have been scholarly men. He who cannot appreciate the nuances of the language of them with whom he is dealing, he who cannot express his own thoughts with like freedom, is at a disadvantage. Aware of this disadvantage he becomes uneasy; he suffers from a sense of conscious or sub-conscious inferiority; sensitive, suspicious, and irritable, he is very likely to assume an attitude of self-defense and to betray his discomfort by assertiveness, ill nature, and bad manners. This may seem strong language, but in the experience of the writer, who feels deeply the relative meagreness of his own classical training, it is quite true.

"Foreign scholars who have spent periods with us are polite in their language but deeply impressed by the mere handful of Americans who have obtained that classical foundation which, to them as to us, appears to be one of the basal requirements of a liberal education."

If we wish to give a medical turn to our classical studies, let us gather up from the poets and philosophers the way in which the early physicians were misled in matters of

anatomy and physiology. How the poet Alcaeus wrote a poem about the dog days, beginning: "Moisten your lungs with wine for the dog star shineth bright, . . ." and how physicians and philosophers, including Plato, believed that drink went through the trachea into the lungs, and solid food only through the esophagus, into the stomach. How the great Alexandrian School of anatomists discovered the epiglottis, which looked as if it would keep liquids out of the esophagus, and Erasistratus found that it did, while others compromised and said that the epiglottis was so finely balanced that it let just enough fluid in to moisten the lungs, while the bulk of it went into the stomach. They were puzzled about how the fluid got from the lungs to the bladder, even down to Galen, who proved that it came from the kidneys by ligating in public the ureters of living dogs and showing the dilatation of those organs and the retention of the urine in the kidneys until he took off the ligature and let the urine run into the bladder. I cannot help thinking how Galen would have enjoyed the moving pictures of the passage of the urine through the urinary system which Dr. Squier showed at the recent meeting of the College of Surgeons in Boston. By the way Erasistratus, mentioned above, was a grandson of Aristotle, being the son of his daughter. He gave up practice to study and teach anatomy. To him and his equally great contemporary, Herophilus, of the torcula Herophili, we owe many advances in our knowledge of the nervous system which was further extended by Galen, that tremendous character, court physician to Marcus Aurelius, anatomist, writer, bitter controversialist, experimental physiologist and admirer of the great founder of medicine, Hippocrates. How near he came to solving the problem of the circulation of the blood! In the writings of Aulus Gellius, among the curious notes about philosophy, grammar, mythology, poetry and the like is an interesting note on what a layman could get out of the medical writers of the time about the circulation of the blood. Aulus Gellius was what we would call a superior court judge in Rome about the time of Galen, and spent

some time studying in Athens with Taurus, the philosopher. One summer he was visiting a salubrious resort called Cephisiae near that city, to escape the heat, when he was attacked by a fever. He called in the local physician, who was feeling his pulse just as Taurus, the philosopher, and some of his friends came to visit him, and the doctor remarked to Taurus—"You can feel the pulse in his vein yourself and see that the fever has left him." Taurus remarked: "We are convinced, my good man, that you are not ignorant of the meaning of the words vein and artery, and that the veins do not pulsate, and are opened only for the purpose of bleeding, while the arteries by their pulsation demonstrate the quality and extent of fevers. No doubt you were speaking in the vulgar fashion as others do; try and be more accurate in your therapeutic methods than in your manner of speech." Gellius goes on to say that he thought not only physicians but laymen ought to know something about our bodies. He got hold of some medical books and found that the veins are only receptacles for blood, or vessels, containing a mixture of blood and vital spirit, with a preponderance of the blood, while the arteries contain more vital spirit in proportion to the blood, and that the arteries had pulsation, which he defined as an "involuntary systole and diastole on the part of the arteries and the heart." Substitute oxygen for spiritus vitalis and how near we are to our modern knowledge. Galen believed that the arteries and veins communicated at their terminations, but he was thrown off by his imaginary openings connecting the right and left ventricles, which imaginary connection was not disproved till many generations further on, when Michael Servetus suggested that in order to get from the right to the left side of the heart the blood might have to pass through the lungs, for which heterodox opinion, among others, he was burned at the stake.

Illustrating the interest and spirit with which Galen went after his anatomical studies, I cannot help telling you the story of Galen and the elephant. Galen described the mammalian heart as consisting of two cavities, the right

auricle and ventricle and the left auricle and ventricle being described as each one cavity. He had also described what he called bones in the human heart, finding them in the hearts removed after death from aged men. I presume he referred to calcified valves. He had found a "bone in the heart of a full-grown deer." He had never dissected an elephant's heart, but thought that that animal, being so much larger than the others, probably had four cavities instead of two, and that the elephant's heart certainly would have a bone in it. One day in the gladiatorial shows an elephant was killed, and the heart was sent to be cooked as a special delicacy for the emperor, Marcus Aurelius. Now Galen, as court physician, was on good terms with the Emperor's cook and went to the kitchen with his students, most of whom believed it likely that the elephant's heart would have four cavities. All of them, however, scoffed at the idea that there would be a bone in it. On examining the heart, it was found to have two cavities like the other mammals, but sure enough there was a "bone" in it. So Galen won half his wager anyhow. Galen was always on the alert for bodies to dissect. He availed himself of the bodies of men found drowned as well as malefactors hanged at the cross roads. He dissected and vivisected monkeys and apes, commenting upon the great similarity of their anatomy to the human, and enumerating the various apes and monkeys in the order of their resemblance to man. Most of his anatomy of the muscles is derived from his dissection of apes.

There is a lot of medical interest in that charming historian Herodotus, from whom we learn that the oculists of Egypt were very famous, one of them too much so for his own good.

He was sent for by Cyrus, the king of Persia, and detained so long against his will that he had to stir up a war between Persia and Egypt in order to get home.

Then there is the story of Democedes of Croton, the man who became so famous at home that he was called to

Aegina, Athens and Samos in succession as a public physician, receiving a very high salary. When Polycrates, the tyrant of Samos, who reached the height of glory and the extremity of disgrace, went on his disastrous expedition to Asia Minor and was crucified by order of Darius, Democedes, who was one of his retinue, was enslaved, chained and thrown into prison. When Darius dislocated his astragalus and the famous Egyptian physicians at court tried violent methods of reduction without effect, Democedes cured the king by mild and gentle measures. Would that there were space to tell how he won the friendship of the king and of Queen Atossa, whom he cured of an abscess of the breast, and how he won a promise that she would do anything for him that did not involve disgrace, and how through her influence he was sent by Darius to Greece as guide to a scouting expedition preparatory to his great invasion, how he managed to run away from the Persians and get back home to Croton, where he married the daughter of Milo, the famous athlete.

Herodotus states that not only were the Egyptian physicians famous for their skill, but there were specialists for every part of the body, including diseases of the brain, the jaws, the abdomen, etc. We are just now beginning to learn a little about Egyptian medicine, which was, we know, for centuries in the hands of the priests who assigned the various parts of the body by astrology to certain gods represented among the stars. To the priests of each particular God was assigned the part of the body under the God's jurisdiction. In Greece, specialism, if we may believe Eustathius, began with the sons of Aesculapius in the Trojan war, for he says, according to Hesiod: "For their father gave both of them gifts, making each more glorious than the other. To the one he gave hands more light to draw or cut out missiles from the flesh and to heal all kinds of wounds; but in the heart of the other he put full and perfect knowledge to tell hidden diseases and cure desperate sicknesses. It was he who first noticed Aias' flashing eyes and clouded mind when he was enraged."

I have spoken above of the advantages of reading the Greek authors in the original. One advantage is that one may find a real gem which is seldom quoted. There is one statement in Hippocrates' treatment of fractures that shows that the author was not entirely divine, and at heart had some human characteristics. This I never saw quoted. We know what compound fractures of the femur were before asepsis, even a few years before, and not two and one-half thousand years. Hippocrates, after speaking of the cases and discussing whether it were better to reduce the protruding ends of the fractured bones, says: "Whatever method is adopted, these cases are extremely serious, and the wise physician will do well to escape them, if he can do so gracefully." In other words, "let George do it." I cannot leave out of this rambling discourse a word about a reference to Hippocrates in Plato. In the Gorgias he compares medicine and cookery to illustrate the difference between a science and empiricism. But his reference to Hippocrates is of especial interest. He is trying to impress upon Adeimantus that one cannot attempt to know the nature of the soul until one knows the nature of the universe, and quotes Hippocrates as saying that we could not even know the nature of the body without some such, so to speak, preliminary training. It is interesting that our great philosopher should have hit upon such a broad and important principle among the others which we owe to Hippocrates. It is rather surprising that there are so few references to Hippocrates in Greek literature. However, if you think about it, I think you will find that most writing about the heroes of medicine is done by brothers of our own profession, who in the nature of things are the only ones who can really understand and appreciate their character and difficulties. Characters like William McLure are rare even in modern fiction.

The poet Theocritus wrote an epigram about his friend Nicias as he presented him with a little statue of Aesculapius. "Even to Miletus came the son of the Healer to succour the physician of diseases Nicias, who ever day by day draws near him with offerings, and had this image

carved of fragrant cedar, promising high recompense to Eetion for his cunning of hand; and he put all his art into the work." Some of the Greek writers of epigrams were rather sarcastic in their verse regarding physicians.

Horace in a charmingly characteristic "epistola" refers to Antonius Musa, a very successful physician at Rome in his day, who had cured the Emperor Augustus of arthritis by a system of cold baths. He afterward failed, it is said, by the same method in the cure of the young Marcellus, who died on his hands. He had a brother in Africa who was court physician to King Juba.

Asclepiades, about 200 years before Galen, was one of the first Greek physicians to practice in Rome. Galen flays him severely in his controversial writings. It seems he was educated as an orator, until he conceived the brilliant idea of applying his oratory to the treatment of patients, and naturally made a great success. Perhaps he did not know much about medicine at first, but he learned very rapidly. He certainly was a good observer. He noticed as a funeral procession was passing that the corpse moved slightly. He at once broke into the ceremony and went to work on the man, and resuscitated him. He gained the reputation of having raised him from the dead, which helped some. Asclepiades believed in the atomic theory, and founded his medical system upon it. He seems to have been a combination of homeopath and physical therapeutist of his day, and to have seriously upset the complacency of those who depended upon drugs. Pliny the elder has written charmingly and at length a medical herbarium which is quaint and curious, but shows a commendable and all embracing interest in his subject. Among other things he says of Asclepiades: "He did not make enough money out of oratory, and as he had a cunning mind which might be employed in other pursuits he suddenly turned to medicine, and as was inevitable in the case of a man who had never practiced or knew anything about remedies, with copious and seductive eloquence, in which he daily indulged, he threw the whole system over-

board, and bringing the whole of medicine before the law for trial, said it was a matter of guess work. He offered five remedies as most important for all diseases,—abstinence from food, and sometimes from wine, massage, walking, riding,—and brought almost all the human race around to his views, no less than if he had been sent from heaven. He advocated hydrotherapy, to which his patients resorted most eagerly, and many other pleasant things for which they were grateful, with great authority." He seems to have been a most sensible quack, but this is the reaction on the conservative Pliny—"With this alone we have a right to be indignant, that one man of the most dubious antecedents, with no resources back of him, simply to make a living for himself, should have promulgated for the health of the human race laws, many of which were afterward proved wrong." There were many things that aided him—among others, "the somewhat uncertain and crude methods of the doctors of the old school, who used to pile the bedclothes on their patients and adopt every method to make them sweat, now roasting them in front of the fire, and hunting for sunlight in a cloudy city, now even throughout the entire Italian empire." He was the first to coddle his patients by the use of shower baths for all purposes. Moreover he took the cruelty out of some of the older methods of treatment, as in angina, which they treated by forcing a tube down the throat. (Nowadays we merely dissect the cervical sympathetic ganglia, or did a few short months ago). He did a good thing when he condemned emetics, which were then used too often. (Think of our own practice a few short years ago). He argued that taking drugs was bad for the stomach, and for the most part, forbade it. (How reminiscent of recent history!) "And therefore we (Pliny) will indicate among the first three drugs which are an aid to digestion," etc. According to Pliny he was much indebted to his exposure of the magic properties assigned to drugs by the Magi and other sorcerers. That would have been all right, says Pliny, if there had been any limit to human credulity, and we could not prove that Asclepiades' claims for his own

system outdid those of the Magi for drugs and magic. All this and a lot more of Pliny is of intereest as showing the attitude of the learned and conservative author to the art of medicine.

A few of the digs at doctors made by the Greek epigrammatists may be of interest. I have not run across any sketches like Dicken's portrayal of Tom Sawyer. But here are a few epigrams—One from Lucullus:

"A doctor sent me his son to be taught such verses as these,
'Sing the wrath and many the woes that were sent'
He learned them, but when we came to the following sentence:
'Many valiant souls he sent down headlong to Hades,'
He sent him no longer to me as pupil, and when
He saw me, 'Thank you,' he said, 'my friend, but my son is quite able
To learn these things from me at home, for I also
Send many valiant souls down headlong to Hades,
And am not in need of a teacher to show me how.'"

Here are a few other uncharitable epigrams about doctors:

"Marcus the doctor called yesterday on the marble Zeus; though marble, and though Zeus, his funeral is today."

"Diophantus, the astrologer, said that Hermogenes the physician had only nine months to live; and he laughing replied, 'What Cronus may bring to pass in nine months do you consider; but I can make short work with you.' He spoke, and reaching out, just touched him, and Diophantus, while forbidding another to hope, gasped out his own life."

"Diophantus, having seen Hermogenes the physician in sleep, never awoke again, though he wore an amulet."

On an oculist:

"If you have an enemy, Dionysius, call not down upon him Isis nor Harpocrates, nor whatever god strikes men

blind, but Simon; and you will know what God and Simon can do."

"Agelaus killed Acestorides by an operation; for, 'Poor man,' he said, 'he would have been lame for life.' "

Well, we seem to have come down from the sublime to the ridiculous. They are both in the classic literature; they are both in life, and they have been with us "back to the first syllable of recorded time." True it is that

"Tomorrow and tomorrow and tomorrow
Creeps in her petty space from day to day,
And all our yesterdays have lighted fools the way to dusty death."

Not all fools, however, were confined to the medical profession. But it is also true that there is no more heartening study in this our own day and generation than a study of the progress of our profession through the centuries. From such study we gain first-hand knowledge of the difficulties and dangers, which in larger measure than in our day, beset our predecessors. From this we may take heart, and strive more valiantly, with so good a start, to prove worthy of the advantages which we enjoy. Whatever they are, they are not of our own making. Under God's providence they were made by our fathers. Through all medicine, from Hippocrates and Galen, down through Harvey, Pasteur and Lister, we can contemplate our heroes, and so be many fold confirmed in our belief in the nobility of our own profession.

BOOK REVIEW

THE OSLER CATALOGUE

Bibliotheca Osleriana. A Catalogue of Books illustrating the History of Medicine and Science. Collected, Arranged and Annotated by Sir William Osler, Bt., and bequeathed to McGill University. (Edited by W. W. Francis, R. H. Hill and Archibald Malloch). xxxv, 785 pp., large 4°, Oxford, The Clarendon Press, 1929, 63 s. (3 guineas).

One rises from an evening over this extraordinary volume with an evocation of an almost forgotten past, repeating to oneself, it may be, the outmoded sentiment of some Victorian novelist—"Ah! those were spring days!" It is now something over a decade since Sir William Osler passed away at the close of the World War, yet here we are once more, some of us, in close touch with the man, sensing his unique personality on every page, vividly, even, in those bracketed marginalia on his beloved books (signed "W. O.") which are the essence of fine bibliography. This catalogue of the great collection just dedicated at Montreal is a mammoth quarto, untempting to the sight, suitable for a monk's lectern at 45 degrees, hard on the *rectus abdominis* if read in bed, yet so alluring that the owner is apt to lose himself in it immediately, even into the small hours of the night. It would seem as if Osler were fortunate even in the time of his passing, for after 1918, he would have fallen, not necessarily upon evil days, to be weathered with the blithe serenity of his colleague Allbutt, who survived him five years, but upon a period in which the ethical, professional and personal ideals he lived for were broken down utterly, the *débâcle* of a great civilization, when even

> "Strong Hades could not keep his own,
> But all slid to confusion."

Life goes on as before, with "business as usual," young people are more cheerful than ever, but not even Osler could now say, with the poet he once attended: "Give me the pay I have served for: take all the rest." This volume evokes memories of his universal friendliness to each and all, how he would go out of his way to cheer a colleague with the gift of a book out of the blue or an encouraging

acknowledgment of some trite reprint; his sympathy with young people; his charm as an essential Victorian gentleman of the younger school; the devotion of his pupils and friends; the tragedy which closed his life; his service to wounded soldiers in the war—

> "Faithful, indeed, is the spirit that remembers,
> After such years of change and suffering." [1]

The book is compact of the *nihil humani alienum* in Osler, that universal interest in all things human which Singer rightly styled "œcumenical." The three editors, Francis, Hill, Malloch, with Mackall as Osler's chosen sleuth-hound, have acquitted themselves nobly, making the dry bones live in a tome which will soon be prized like Haller's great *Bibliothecae*. As an introduction to medical literature far more instructive than those of Boerhaave and Young, it is a triumphant verification of Osler's expressed view: "There is no better float through posterity than to be the author of a good bibliography." It begins (following the editorial preface) with one of the most fascinating things he ever penned, an autobiographic sketch on "The Making of a Library." There follows the great Bibliotheca Prima, an almost complete list of basic texts and related items illustrating the history of medicine and general science, from Lucretius to Röntgen. Some 67 names are featured in large type as outstanding leaders of science, very much as in Choulant's *Handbuch* of 1841, and these Dr. Francis styles "Primarians." No exception could be taken to the Osler Primarians up to the second half of the 19th century; but if one misses Semmelweis, Charcot, Graefe, Ludwig, Kelvin, Maxwell and some other prime movers, the list is after all, Osler's own, representative of himself, and no more to be bickered over than an anthology of his (or another man's) favorite poems.[2] The meaning becomes

[1] Emily Bronte.

[2] Such an anthology, revised by Osler before his death and printed by the Oxford Press in 1920, was unmercifully slashed by Solomon Eagle in one of his lively reviews. The poems are mostly Victorian and the only regret of the editors is that we did not include Shelley's magnificent stanzas on Athens, which will be found in Robert Bridges' *The Spirit of Man*, London, 1916, 93.

clearer in Bibliotheca Secunda, which includes names and texts of secondary importance. If one misses here the essential contributions of some of his old familiars—Villemin, Trousseau, Frerichs, Naunyn, Dejerine, Marie, Metchnikoff, *hoc genus omne*—it is at once apparent that, like Landor, he was always giving such items away to make room for others, to the value of a small fortune. Upon the advent of such newer men as Pavloff, Cajal, Aschoff, Emil Fischer, Loeb, Abderhalden, Schaudinn, Behring, Wassermann, Bordet, Carrel, Rubner, Gulstrand, the list obviously closes. Some items which deserve a place in this wonderful collection—e. g., Baillou, Werlhof, Cruveilhier, Magendie, Sir. W. Bowman, the pediatric compend of the younger Heberden, Goodeve's tropical pediatrics, Peacock on malformations of the human heart or the fragmentary history of medicine by Meryon (father of the famous etcher) will doubtless be added, as opportunity offers, by the faithful, who could have been of more material help in the master's lifetime had they realized the immense scope of his endeavor. By way of contrast, the third section, Bibliotheca Litteraria, is amazingly complete. We look for unusual medical poets like Campion, Lodge, Beddoes, Saint-Marthe, Littré, and sure enough, Campion *et al.* are there and even Sainte Beuve's fine *causerie* on Littré, with Osler's notation of its memorable close: *"Bien qu'il n' ait pas prononcé le fameux Serment qui lie au sacerdoce médical, il le porte écrit dans son coeur."* Sections five (Bibliotheca Historica) and six (Bibliotheca Bibliographica) are made up of items on the history of medicine and bibliographic catalogues. Section seven (Incunabula) includes 104 items, apart from those cited in Bibliotheca Prima; and Section eight 132 MSS., notably of Albertus Magnus (1437), Ferrari da Grado, Haly Abbas (Arabic), Johannes Jacobi, Lancisi, Nicolaus of Cusa, an indenture of Edward Osler as surgeon's apprentice (March 22, 1811), G. B. della Porta (autographic), Sir John Harington's translation of the Salernitan Regimen, Constantinus Africanus and 15 early diplomas of the Universities of Bologna, Cambridge, Leyden, Padua, Pavia, Pisa, Rome, Utrecht

and Venice. The appendix "Osleriana" contains the Edgerton Y. Davis items and a list of such intriguing Osler MSS. as A Study of Dying, An Anniversary Address on Walt Whitman, Appeal to Hibernia Magna, Imaginary Letters from Fallopius & Co. on Howard Kelly's Operative Gynecology, A Lecture on Life in the Tropics, The Lessons of Greek Medicine, St. Thelema, The Nervousness of American Women, The Transatlantic Voice and so on. The volume terminates with a remarkable list of Sinhalese, Persian, Arabic, Hindustani and Sanskrit medical MSS. and books, presented by Dr. Casey A. Wood. Of the collections made by Osler himself, Harvey (165 items) and Sir Thomas Browne (162 items) are probably as complete as human endeavor can make them. The typography and proof reading are what might be expected from the Clarendon Press. Not only should Oslerians vie with Cushing and Mackall in adding missing classical texts of the smaller sort to this great collection, where possible, but should a second enlarged and revised edition appear, as seems probable, it could be made infinitely more valuable and viable, if issued in smaller and handier volumes (we can almost see the book-lover reaching for one of them with affection). May the present edition be to the next one as the 1543 Vesalius to the 1552-5 Vesalius, a collector's specimen, sought after for its historic associations, but yielding to its successor in completeness, usefulness and availability as a source of ready reference. As it stands, this volume ought to be in the hands of every seasoned lover of medical books and of every student who wishes access to the best bibliographic introduction to medical literature since Haller and Boerhaave. Those who work for the larger and more distant end will do so in the spirit which moved Sir William to put his remaining energies into the task and Lady Osler to carry on in the face of doubled loss—

"Make me see aright
How each hath back what he once stayed to weep,—
Homer his sight, David his little lad."

F. H. Garrison.

SECOND ANNUAL GRADUATE FORTNIGHT

The Second Annual Graduate Fortnight of The New York Academy of Medicine will be held October 7th to 19th, 1929.

The subject chosen for this year's Fortnight is "Functional and Nervous Problems in Medicine and Surgery."

Afternoon Sessions in Teaching Hospitals

In the afternoons a number of the large hospitals of the city, with an abundance of clinical material, will cooperate in the Fortnight by presenting specially arranged clinical programs.

Attendance at the afternoon hospital clinics will be controlled by clinic tickets, for which advance registration is requested.

A registration blank for reservation of clinic tickets will be mailed upon request. Clinic tickets will be sent to those who make reservations, or may be called for at the Registration Bureau.

Evening Sessions at the Academy of Medicine

Evening sessions will be held at the Academy at which well known authorities will discuss many phases of the general subject. The evening meetings will begin promptly at 8:30. No tickets of admission will be required.

Additional Clinics

Besides the specially arranged hospital programs the regularly announced non-operative clinics and clinical conferences will be held as usual, both morning and afternoons during the Fortnight, in over forty teaching hospitals of the city. No registration or tickets will be required for these clinics.

The complete program has been mailed to registered physicians residing within a radius of one hundred miles of the city.

LIBRARY NOTES

A VOLUME ON DEPOSIT AND ITS OWNERS

Dr. Robert F. Loeb, a Fellow of the Academy, very kindly deposited a very valuable volume in the Library for safe keeping after our Harvey exhibition was over. It formerly belonged to his father, the late Professor Jacques Loeb, that distinguished physiologist, and contains the following books in the order given:

1) Christopher Jacob Trew, *Dissertatio Epistolica de Differentiis qvibvsdam inter Hominem natvm et nascendvm*...Norimbergae... MDCCXXXVI.

2) William Harvey, *Exercitationes de Generatione Animalium*... Londini...M.DC.LI.

3) William Harvey, *Exercitatio Anatomica de Motv Cordis*...Francofvrti...M.DC.XXVIII.

4) Werner Rolfinch, ...*Dissertatio de Hepate*...Jenae...MDCLIII.

The books numbered (2) and (3) are of course first editions of Harvey's two famous works.

The volume is bound in vellum and on the spine is a paper label bearing the title, "Trew et Harvei de Generatione et moto sanguin," below which is written "Severino." The first blank leaf inside has an endorsement which is probably that of a bookseller: "L'opusculo di Arveo è annotato da Marco Aurelio Severino, raro e prezioso." And when we turn to (3), we find that beneath the date on the title-page is written: "Clarissimo viro Marco Aurelio Severino ab Illustrissimi Autore dono missus cum Libris," so the book was a gift from Harvey. There are many notes in the same hand throughout the book and another at the end that Severino had written the annotations in 1642. Marco Aurelio Severino (1580-1656), a native of Calabria, professed anatomy and surgery at Naples and is recognized as the author of the first book on comparative anatomy (*Zootomia Democritae,* Norimb., 1645) and by De Renzi as the regenerator of Italian surgery. Some of the books of Severino are in the Bibliotheca

Lancisiana at Rome.* It is also of some interest to note that Sir John Finch (1626-1682) and Sir Thomas Baines (1622-1680) together purchased part of the library of Severino in 1663 from the Secretary of the Kingdom of Naples.** Luckily enough Harvey's book was not in the collection, for the Finch and Baines library, together with a portrait of Mrs. Harvey with her parrot, were destroyed by fire at Burley-on-the-Hill, in Rutland, England, about 1906, despite the united efforts of the firemen and those of Winston Churchill who was staying in the house at the time. *Punch* took notice of the fact that Churchill had added to his collection of hats by borrowing a helmet on that occasion!

The most important point about this copy of the first edition of the *De Motu Cordis* is that it is a considerably larger copy than any other which the present writer and Mr. Geoffrey Keynes, the recent bibliographer and editor of Harvey, have seen. Most of the copies now extant have been much trimmed; for instance, that owned by the Academy, which came from the library of the late Dr. Walter B. James, measures 7¼ x 5½″ while the Loeb copy measures 8⅜ x 6¾″. The copy now in the Bibliotheca Osleriana at McGill University, Montreal, is complementary to the Loeb one. What the Loeb copy lacks in height is supplied by Sir William Osler's copy and where the Osler page is narrow, the defect is made up by the Loeb one. The Osler copy measures 8½ x 6 5/16″. Unfortunately, however, the paper of the Loeb copy is very poor in quality, is foxed and has become crumbly, but the James and Osler ones are printed on much better paper which has lasted well.

It is a thousand pities that Harvey's great book was so badly printed and many errors made their way into the text. I do not believe that the Frankfurt publisher, Wil-

* Information given in a letter to the writer from Dr. Pietro Capparoni of Rome.

** See *Finch and Baines, a Seventeenth Century Friendship*, by Archibald Malloch, Cambridge at the University Press, 1917, pp. 41 and 79.

helm Fitzer (an Englishman, by the way), was altogether to blame, for Harvey wrote a diabolically bad hand. Most of the copies of the book which are now to be seen have no leaf of errata; for example, there was none in three of the four copies shown at the recent Harvey exhibition at the Academy, but according to Mr. Geoffrey Keynes a minority have it. Happy we are to say that the page and one-third of errata is found in the Loeb copy.

The books we have numbered (1) and (2) in the volume have the name "Dr. Ruberti, Michelangiolo Alessandro" inscribed on their title-pages. Ruberti was a Neapolitan* and in 1745 described a double-headed calf. We have no copy of this publication but there is one in the British Museum: Ruberti (Michele Angiolo), *Lezione sulla testa mostruosa d'un Vitello,* Napoli, 1745, 4°. This book evidently called forth a good deal of discussion; whether it was all playful, or serious, or playful and at the same time serious, we cannot say. De Renzi notes one commentary and it is in the British Museum: Gulliver (Lemuel), *Lezione su d'un Vitello a due teste dell' Accademico delle Scienze, colle note di L.G.* [Naples? 1745?], 4°. The *British Museum Catalogue of Printed Books* states that this is a satire upon the *Lezione* of Ruberti. It is amusing to speculate about "Lemuel Gulliver" and who he could have been. Of course one would think immediately of Jonathan Swift, but he died in 1745, the very year in which Ruberti's publication appeared. Besides, some years before his death he began to show the change which he had prophesied to Young: 'I shall be like that tree: I shall die at the top.' There is one medical pamphlet in the Academy entitled *The Anatomist dissected: or the man midwife finely brought to bed...Touching the late pretended Rabbit-bearer,* 3rd ed. Westminster, 1727, written by 'Lemuel Gulliver, Surgeon and Anatomist to the Kings of Lilliput and Blefuscu...' but this is no longer attributed to Swift, though the Dean was interested in medical matters and wrote *The Right of Precedence between Phisicians and*

* Salvatore De Renzi, *Storia della Medicina in Italia,* 1845-1849, v, 320.

Civilians enquir'd into, Dublin, 1720 and *A Serious and Useful Scheme to make an Hospital for Incurables of universal benefit to all His Subjects,* London, 1733.

John Arbuthnot, the medical poet and friend of Swift, Pope and Gay, used 'Lemuel Gulliver' as a pseudonym when he wrote *The Masquerade. A Poem.* He added that he was the "Poet Laureat to the King of Lilliput." This is contained in *Miscellaneous Works of the Late Dr. Arbuthnot,* Glasgow, 1751, of which the Academy has a copy. Unfortunately, as he died in 1735, we cannot assume that Arbuthnot was the author of the notes on Ruberti's work. The question of the identity of our 'Lemuel Gulliver' is really a Brobdingnagian one and we must leave it unanswered.

Another commentary upon Ruberti is to be found in the British Museum. Its title suggests that the author must have found amusement in writing, and his friends in reading it. The author was 'Lisandro' and the playful work, *Dialogo interlocutori, Lisandro Aristide e D. Fastidio,* [Naples? 1745?]. The literary world must have thanked that cow for giving birth to a two-headed calf!

The four works contained in this precious volume could not have been bound together in the lifetime of Severino for (1) was not published until 1736 and Severino died in 1656. It is possible that Ruberti had it done or at any rate the whole volume would seem to have been in his possession as notes on one of the blank end leaves, added at the time of binding, are evidently in the same hand as that of Ruberti's signatures. It is impossible at the present time to answer all the questions called forth by this volume. There are notes in two hands in (2) resembling those of Severino and Ruberti. It seems likely that the armorial stamp in (2) and (3) is that of Severino but one cannot be certain as it remains unidentified.

Dr. Robert Loeb has set a good example in placing a valuable and notable volume in our care. Who will follow his lead?

ARCHIBALD MALLOCH.

AMONG OUR MANUSCRIPTS

A collection of medical documents often yields material of unusual human and historical interest. The dingiest scrap of paper may prove to be of value in connection with some great personage of a century or so ago, and some new and startling biographical fact may be hidden away on a worn yellow sheet. The manuscripts in this library offer ample reward to those who feel a desire to turn their thoughts to the past and ponder over the lives of the founders of this Academy and their immediate forefathers.

A well-known figure in Colonial politics was Thomas McKean of Delaware and Pennsylvania. Claimed by both of these states, he was the only member of the Continental Congress that served from its opening until peace was established, and his name will always be remembered as one of that noted group who signed the Declaration of Independence. It was indeed a surprise to come across his signature twice in our collection of medical manuscripts. The first is on a single sheet of paper, well worn by its contact with many hands. It is dated December 12, 1799, and addressed to one of our first great statesmen, Alexander Hamilton. The note recommends to Hamilton a young doctor, "a gentleman of general science and of an amiable character" who intends to "follow his profession of Physic in your city." Hamilton had resigned from the Cabinet and was then practising law in New York. The "gentleman" it seems, was Dr. John Richardson Bayard Rodgers, a distinguished member of a very prominent family. He had been a surgeon in the Revolutionary Army and had served on Washington's Staff. His father was the Reverend John Rodgers, chaplain of the New York Provincial Congress and first Vice Chancellor of New York State University. His son was Dr. John Kearny Rodgers, also a famous New York surgeon, who became Vice President of this Academy in 1848. Few families can boast such a record for three generations, and McKean with confidence assures Hamilton that Dr. Rodgers "is

esteemed skilful therein, [the medical profession] by the most eminent in that Sine of this place."

McKean's connection with the world of medicine seems to have been confined to some extent to penning lines of approbation, for a few years later, on April 27, 1805, still in his capacity of Governor, he signed an official recommendation of another doctor, also a resident of Philadelphia, Dr. Felix Pascalis. The library is rich in material concerning this gentleman. Diplomas of societies here and in France, letters to and from physicians of many countries, indicate his position in the medical world of his time. It was in this year, 1805, that the fever epidemic of Cadiz raged, and Dr. Pascalis left this country for Cadiz and Gibraltar to study the disease. It was extremely difficult to enter Spain during that period and he was forced to go by way of France. It took him many months to reach his destination, for we find also among our papers a passport allowing him to enter Cadiz, October 16, 1805. This document was first issued, April 27, 1805, by Don Carlos Martinez de Yrujo, Ambassador from the Court of Spain to the United States of America. From his hands it passed to those of Ortiz de Rozart, official at Bonanza, Mexico, June 26, 1805, and hence to Lucar de Barrain at Cadiz.

It is gratifying to see Thomas McKean writing in recommendation of Dr. Pascalis, as we find in much of his correspondence a note of bitterness that after years of service for this country he was still treated as a foreigner and refused appointments because of his birth in another land. McKean writes in his own hand: "I do hereby recommend the said Felix Pascalis to the protection and favorable attention of all officers, civil, naval & military of the said United States, and of those nations in alliance or amity with the United States of America, and all others; and to afford him all the aid he may stand in need of on his voyage to France, and on his return to the said United States." His stay abroad could not have been long. On his return to this country he took up the practice of his

profession in this city, where he remained until his death in 1840. In November, 1813, he wrote to his wife, who was living in New Jersey on account of financial difficulties: "As for my part after 13 years experience in Philadelphia & 8 yrs. in New York I am convinced that my practice should no more be depended upon as our sole support." He complains of this in many of his letters. Fortunately this was not common among successful and esteemed physicians of the time, or many talented young men would have been easily persuaded to forsake a career of medicine and turn to something more lucrative.

It is in the contents of these long forgotten papers that we discover the part played by medical men in the young days of our country. It seems well worth the while of the student of medical history and biography to spend a few spare moments with these intimate and personal records that link us with the past.

GERTRUDE L. ANNAN.

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CORRECTION

In the August number of the Bulletin (Vol. V., No. 8) two errors appeared in the obituary of Dr. Reginald Hall Sayre, which are corrected to read as follows:

Page 809, second paragraph, second line " . . . Hospital and President in 1909-10 [not 1902-10]."

Page 811, fourth line, the date of Dr. Sayre's death is May 29, 1929 [not 1919].

MEMORIAL ADDRESSES

HIDEYO NOGUCHI
1876-1928

THEOBALD SMITH,
The Rockefeller Institute for Medical Research, Princeton

By those who knew Hideyo Noguchi he will not be forgotten. His kindly, cheerful disposition, his loyal friendship, his warm, affectionate personality, and his modesty have endeared him to his associates. His place in medical and world history, however, will be determined by the products of his labors after his personal friends shall have followed him.

The formidable scientific output of the present generation, with a promise of still greater productivity of the next, will make many achievements of the immediate past seem commonplace; and the silence of comparative oblivion will descend and envelop even those who have in a conspicuous manner served humanity. In science, so interlocking have become the items making for some outstanding discovery that in the future it may be desirable to raise a monument to the unknown scientist who was the first proponent and inciter of some specially noteworthy advance.

There appear, however, at rare intervals men whose originality and whose capacity to bring that originality to actual fruition are so manifest that with little or no dissent their colleagues and co-workers are prepared to lift them well above the common level. Such a figure was Hideyo Noguchi. The achievements of such men grow as they recede from us in time instead of gradually merging into the commonplace.

In the conduct of scientific research we may postulate three main concepts: the guiding idea or forecast, the method or technique, and the result or outcome. The world

Delivered at The Academy of Medicine, December 20, 1928

at large cares only for the outcome. To the scientist, the other items are of supreme importance. If the forecast is well considered, even a faulty method may carry the worker to success. With a superior technique, he may obtain results by boring in many directions without any guiding plan. It may happen that the idea does not guide, the method may not work, but even then an accident may bring results. This is frequently the common lot.

It is too early to attempt an analysis of the forces which led Noguchi to so many successes, but we may at least glimpse what the coming years will see more clearly. Underlying the idea leading up to the solution of some special problem is what may be called the moral ideal governing our activities, what it is all about, why we spend so much life energy in any given direction. Reading between the lines of Noguchi's protocols we may see a guiding ideal throughout, to do something useful for humanity in the struggle against disease and to do it as promptly as possible even by abandoning, at least temporarily, more interesting and stimulating paths. All his labors tend towards some practical end.

In this and in the more definite ideas and forecasts governing the choice of problems, we feel the dominating influence of his teacher, Simon Flexner. It is he who worked with him and for him; who recognized the special capacities of his ward and directed him towards the tasks which he so successfully carried out; who advised, encouraged, stimulated and repressed: for the dangers that surround the brilliant worker in letting his mind outrun his slower and more or less tedious physical progress are great, and, unless controlled, they not infrequently lead to sterility. Noguchi had another great advantage, without which even the best minds may remain unfruitful, namely material equipment. He was fortunate in having behind him the resources of the Rockefeller Institute for Medical Research. The internal evidence to be gathered from his published work is clear as to the exotic requirements of much of his work.

In technique Noguchi was master in many fields, but he especially excelled in creating his own methods. These were relatively simple, but his craftsmanship was such that he accomplished wonders with them. In biology, where so many unknown factors are involved in any problem, only close personal application and the modification of methods to suit the new and often unexpected situations that present themselves will eventually succeed.

The most impressive thing in Noguchi's scientific career was his marvelous industry. All of his numerous papers present the internal evidence of laborious, time-consuming processes, carefully controlled. Nowhere is there any indication of any devices automatically yielding results. His expeditions into the many fields of medical science were personally conducted and largely alone. His method appears to have been to make himself at the start master of all the work of his predecessors and of the current technique,—to which he always added original touches if not wholly new devices. He was scrupulously careful in giving due credit to earlier investigators; and he was seriously distressed to discover any lapses due to the difficulties of tracing unindexed results in old and new writings. He never appears to have gotten lost in his methods or to have permitted them to dominate him. He turned with facility, without a break, from one technique to another entirely different.

Noguchi's career in medical research may be divided into periods according to certain major problems. From about 1900 to 1908, he was absorbed in the study of snake venoms and a number of collateral problems in immunology. In the next period, to 1918, his work was chiefly upon syphilis and during this period he became interested in many other forms of spirochetes. In his last period, his major work was the bringing to light of etiological factors in yellow fever, Oroya fever, and trachoma. During the second and third periods he did not lose sight of his earlier work, and throughout this part of his career, medical literature contains papers on a variety of sub-

jects outside the domain of his major problems and harking back to his earlier preoccupations. These multitudinous interests were due in large part to his skilful technique which enabled him to bore successfully into more or less alien fields, among them, for example, protozoology in which even the masters were marking time.

At the beginning of his career he came into the field of pathology just as it was entering the new era of quantitative rather than qualitative experimental procedures. The discovery of toxins and antitoxins and the fairly accurate measurements of toxic and antitoxic energy during the last decade of the nineteenth century enabled him to apply them to his own particular tasks. In his many publications of this period he has always added something to the stock of demonstrable facts. A few details concerning these three periods will not be out of place on this occasion.

During the years from 1900-1907 he was busy with problems relating to the hemolysins and agglutinins of snake venom and the protective sera. He was also drawn into the study of chemically known substances acting as hemolytic agents. During most of his subsequent career he continued to dip into the Pandora's box of medical mysteries—the blood—for both problems and their solution. I believe it was Goethe who characterized the blood as "Ein ganz besonderer Saft," and Noguchi's life work has materially added to the existing evidence that it holds at least a part of the secret of all our problems. Towards the end of this early period he edited in book form his researches together with much information on the anatomy of snakes and the physical and chemical characters of the venoms. If he had stopped here, this large volume in itself would have established his reputation as a keen observer and experimenter and as one endowed with a breadth of view which regarded nothing short of the whole as his final objective.

Towards the end of the first decade he began his work on the many aspects of syphilis, which perhaps will leave

the most permanent record of his life work. At the beginning of this epoch, Schaudinn had already demonstrated spirochetes in the lesions of syphilis. Noguchi soon succeeded in obtaining pure cultures of the Treponema, with a craftsmanship applied to his special culture medium which few could follow. His demonstration of Treponema in the cerebral cortex of general paralysis and in tabes cleared once for all the diagnostic difficulties which surrounded these clinical entities. He developed a special diagnostic technique and defended its place beside the current methods with a great statistical array of actual tests. He did not stop with Treponema but continued to apply his technique to the pure culture of many spirochetes on the mucous membranes, and in external nature, which we had hopelessly seen flit across the fields of our microscopes from time to time.

We need only to mention here his cultivation of the globoid bodies in infantile paralysis and his important work in the development of a vaccine virus free from the miscellaneous bacteria of the bovine product. Much of his work of this and other periods will be taken up again and form the groundwork of further structures when our present anxiety to bring forth absolutely new scientific products will have subsided somewhat in favor of a more orderly development of the new territories discovered since the time of Pasteur.

In 1918, Noguchi began a series of researches on the etiology of obscure infectious diseases which was to continue until his death. In this, perhaps the most difficult field, his success was equal to that of his earlier demonstrations to reach the goal at which he aimed.

Infectious diseases of more or less identical clinical expressions so far as they are now understood, may have a bewildering array of different causes. Hence when a disease of unknown etiology presents itself, the cause may logically be referred to a variety of mechanisms. To pursue an inquiry into these requires a different preparation and a different procedure for every one of them. Which

of the latter is to be followed is naturally a matter of grave concern to the investigator and may mean success or failure. Moreover, there may be several living agents involved, working in series or together, both of which may be necessary, or one dominant. The incidence of disease may be seriously modified or obscured by longstanding endemic resistance, and its clinical nature so misread that it is regarded as of sporadic and relatively harmless character. In addition to these difficulties the discouragement which is associated with the many failures of earlier attempts by other skilful investigators must be overcome and be replaced by optimism and enthusiasm.

Of the three diseases studied by Noguchi during this last period yellow fever is undoubtedly the most formidable enemy of the race. In view of recent investigations on the African continent which thus far fail to substantiate Noguchi's results on the American continent, I have read again the papers on his yellow fever studies in South America. I do not see how anyone could have drawn inferences other than he did. He was at the time well versed in the work of his countrymen on the spirochetes of Weil's disease, which might have been confounded with it, having himself already added to current knowledge of this clinical entity. It remains for the future to inform us, whether a distinct clinical yellow fever complex exists which is due to spirochetes, or whether the South American type of yellow fever is so mild that it needs the cooperation of an endemic spirochete disease to make it effective. Such geographical alliances among microbes are not unknown and they form most interesting, albeit highly controversial chapters in etiological research, besides leading to the temporary rejection of valuable work. I may say in passing that it is not impossible that the future may unsettle many a well established cause of disease by unearthing some cooperating underlying invisible agencies. The most certain demonstration of the actual character of South American yellow fever would be found if this yellow fever should escape from the endemic territories in epidemic form, for it is often only in such escapes that

disease becomes primitive, exposes its original etiological foundation, and unfolds its most dangerous characteristics. I am convinced, however, that humanity is willing to wait for a more conservative and less cruel, even if more tardy, disclosure of the actual nature of this dread disease.

Noguchi's recent work on the Oroya fever of the Peruvian Andes brings out in clear detail, the existence of two widely differing clinical types of disease due to the same organism, a general febrile disease on the one hand, and a local process on the other. The work has been particularly instructive in bringing to the surface through Noguchi's culture methods a bacterium of peculiar habits and characters which, imitating the habits of a non-cultivable parasite of the red blood corpuscles, would lead most investigators astray. The most recent work on this disease, which completes the cycle of the microbe through the body of a biting insect, would have been extremely satisfactory to Noguchi had he lived to learn of it.

Noguchi's final work on trachoma is a striking demonstration of his capacity to dig down into the debris of earlier failures and bring success to the surface. He procured an organism with which he has produced in certain animal species a local disease indistinguishable from the human malady. In a superficial process of this kind, the investigator has to contend with a variety of more or less accidental parasites, often replacing or crowding out the earliest inciting factor, the detection of which however is essential to the final solution of the problem of causation. He had not lost any of the persistence and untiring industry shown in earlier work, for he eliminated one after another the many types of bacteria which lived in or on the trachomatous conjunctiva until one was found which produced characteristic lesions in certain monkeys. Even this one might have been passed by as of no special significance by most observers.

This very brief, hurried and imperfect glimpse of Noguchi's scientific activities, involving as it does the omis-

sion of many minor investigations, indicates not only the fertility of his ideas and methods, but points to the promise of important structures to be raised on his foundations by those not so preoccupied and harassed as he was by new and unforeseen tasks. The true test of scientific labor is its continuing fertility, and we believe Noguchi's work will also stand this test satisfactorily. His was a remarkable record of achievement for three decades of life work, and as the lesser contemporary endeavors pass into the ordinary text of history he will stand out more and more clearly as one of the greatest, if not the greatest, figure in microbiology since Pasteur and Koch.

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The controlling influences of a man's destiny, particularly in the field of science, arise out of his mental endowment, his natural traits, training, opportunities, and environment. I believe that Dr. Noguchi received a rich inheritance from his Japanese ancestry. His countrymen possess certain qualities which have rendered them especially apt in the cultivation of the biological sciences.

Dr. Noguchi had the power of clear, accurate observation, of drawing correct inferences from observed facts, and of vision and imagination in forming hypotheses, which are essential for creative work in science. He formulated clearly the questions which he asked of nature; and he had extraordinary ingenuity in devising and adapting methods for the solution of problems. He had also that Japanese quality which we of Anglo-Saxon race at least do not possess, a certain artistry, an artistry which can be seen in the method of his work and the presentation of his results.

These unusual qualities to which I have alluded, and a physique, apparently frail yet capable of great endurance under severe mental and physical strain, created a singularly gifted and attractive personality. This personality,

so simple, sincere, and kindly, combined with the weight and importance of his utterances on public occasions, captivated the audiences before whom he spoke. This was a great achievement for one addressing an audience in a speech foreign to him and of a race so remote from his own. It is true beyond all question that the influence of such a life of work, of such a personality as that of Dr. Noguchi, strengthens the sympathetic bonds between our two countries.

We have heard something of the early life and training of Dr. Noguchi and of the continuance through almost three decades of the association between Dr. Flexner and Dr. Noguchi. I am sure, if Dr. Noguchi could speak he would like to have commemorated on this occasion that intimate and sympathetic association, an association far more inspiring than the familiar and customary relationship of the head of a laboratory with the workers in it. It in no way detracts from Dr. Noguchi's originality to say that he was dependent upon this kind of sympathetic understanding and appreciation.

Dr. Noguchi brought great renown to the Rockefeller Institute. He also derived great benefits from the resources of that institute. Perhaps no more striking example of the benefits which may come to a certain type of original investigator in science from an institute of the character of the Rockefeller Institute, can be adduced than that exemplified in the life and work of Dr. Noguchi.

There is one point which I should like to stress, although Dr. Smith has already stressed it, namely, the importance of Dr. Noguchi's work in the study of yellow fever. I think that the subject needs a little emphasis, because should it appear, and it is likely to, I think, that the American disease and that prevalent in Africa are identical, should it appear that Noguchi's leptospira is not the cause of yellow fever, that does not imply that Noguchi's work was not a very important contribution. It is a contribution of the first importance if it demonstrated that cases of infectious jaundice are, according to the best

clinical traditions, occurring in epidemics diagnosed as yellow fever. It is of the utmost importance also to know whether the leptospira is a secondary invader in yellow fever. Nor were Noguchi's studies limited solely to the spirochete. I would simply like to emphasize on this occasion that, whatever the issue as to the relationship of the spirochete to yellow fever, Noguchi's work constitutes a very important contribution to the subject.

Memorial meetings such as this are perhaps of more benefit to those who participate than to the one commemorated. Noguchi's fame is secure. He stands now and did stand at the time of his tragic death among the foremost international figures in experimental medicine and biological science. But we do well to come together and to pay our tribute of respect and admiration and affection to the memory of such a man as this. We do well to cherish his memory, to perpetuate his name; and we should do better if we were inspired by his example, his singleminded devotion in the search for truth, his loyalty, and his desire to extend the boundaries of knowledge for the welfare of mankind.

DEATHS OF FELLOWS OF THE ACADEMY

James Ditmars Voorhees, B.A., M.A., M.D., Easthampton, L. I.; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1893; elected a Fellow of the Academy, March 6, 1902; died, July 30, 1929. Dr. Voorhees was a Fellow of the American College of Surgeons, a member of the Obstetrical Society, a member of the Society of Alumni of Sloane Hospital for Women and of the Alumni of Presbyterian Hospital. He was Consulting Obstetrician to the Greenwich General and the Southampton Hospitals.

John Henry Guntzer, M.D., 51 North Regent Street, Port Chester, N. Y.; graduated in medicine from Bellevue Hospital Medical College, New York City, in 1889; elected a Fellow of the Academy, December 3, 1908; died, August 5, 1929. Dr. Güntzer was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, and a member of the American Laryngological, Rhinological and Otological Association. He was Assistant Surgeon to the Manhattan Eye, Ear and Throat Infirmary, and Otologist and Larynologist to the United Hospital.